

Crash rates and costs

Crash reporting rates

The ratio of 'reported serious injuries' can be assessed by comparing seriously injured casualty numbers from Police crash reports to hospital admissions, given that a serious injury is generally one requiring hospital attention.

Figure 1.1 below indicates the serious injury reporting rate for each region.

Figure 1.1 Reporting rate serious injuries to hospital admissions

Region	1997 1999	2001 2002	2002 2003	2003 2004	2004 2005
Northland	41%	52%	54%	59%	68%
Auckland	63%	63%	67%	67%	67%
Waikato	58%	65%	69%	68%	75%
Bay of Plenty	48%	54%	63%	60%	63%
Gisborne	53%	56%	56%	60%	55%
Hawkes Bay	57%	65%	72%	73%	79%
Taranaki	69%	70%	75%	70%	73%
Manawatu-Wanganui	64%	67%	63%	62%	69%
Wellington	62%	56%	65%	63%	72%
Nelson-Marlborough	74%	67%	72%	68%	71%
West Coast	58%	64%	71%	62%	70%
Canterbury	68%	69%	69%	68%	69%
Otago	62%	79%	79%	77%	83%
Southland	55%	68%	68%	61%	73%
New Zealand	60%	64%	67%	67%	70%

These variations in reporting rates need to be considered when viewing the trends in crashes and casualties shown in this report.

Figure 1.2 Crashes per 100 million vehicle kilometres travelled

	Local roads		State highways	
	Urban	Rural	Urban	Rural
Southland Region	72	34	51	26
Group Y	39	28	30	21
All NZ	36	26	32	16

Figure 1.3 Casualties per 100 million vehicle kilometres travelled

	Local roads		State highways	
	Urban	Rural	Urban	Rural
Southland Region	103	54	71	44
Group Y	50	40	40	33
All NZ	46	38	43	25

Figure 1.4 Peer group crash and casualty rates

Regions												
Region name	Crashes per					Casualties per					2007 Population	% of rural crashes
	10,000 Population (5 year average)	100 million vehicle kilometres travelled				10,000 Population (5 year average)	100 million vehicle kilometres travelled					
		Local roads		State highways			Local roads		State highways			
		Urban	Rural	Urban	Rural		Urban	Rural	Urban	Rural		
Auckland	23	34	28	50	13	30	43	40	69	19	1394000	28
Bay of Plenty	21	26	25	25	17	31	33	39	35	28	267700	49
Gisborne	24	36	20	34	23	33	44	29	52	35	45900	47
Hawkes Bay	32	44	31	32	21	45	55	48	45	34	152500	48
Manawatu Wanganui	27	36	22	28	17	39	43	35	37	27	229000	54
Nelson Marlborough	77	44	17	29	19	103	53	26	36	28	44400	51
Southland	45	72	34	51	26	69	103	54	71	44	93000	49
Greater Wellington	20	33	29	38	11	26	40	41	51	17	470300	29
Canterbury	24	34	18	22	13	32	43	26	29	19	546900	31
Chathams	75	n/a	n/a	n/a	n/a	94	n/a	n/a	n/a	n/a	640	n/a
Northland	33	35	32	34	26	48	46	46	47	39	153800	69
Otago	44	70	44	47	24	66	98	67	66	38	201700	45
Taranaki	28	42	30	32	23	39	56	44	40	35	107200	52
Waikato	30	39	21	25	16	42	50	29	35	26	398600	59
West Coast	34	31	16	34	20	50	44	24	45	30	32200	74
All Regions	27	36	26	32	16	37	46	38	43	25	4137840	41
All New Zealand	26	36	26	32	16	36	46	38	43	25	4227700	41

Differences in All New Zealand and All Region totals due to individual rounding.

N/A : Denotes that data for vehicle kilometres travelled (VKT) is not available or inappropriate for some categories.
 Crashes and casualties per 100 million VKT are based on five years of reported injury on-road crash data (2003-2007) and December (2005) VKT.
 Crashes and casualties per 10,000 population are based on five year average crash data (2003-2007) and Statistics NZ 2006 population estimates.

Figure 1.5 Crashes per 100 million vehicle-kilometres travelled - urban local roads

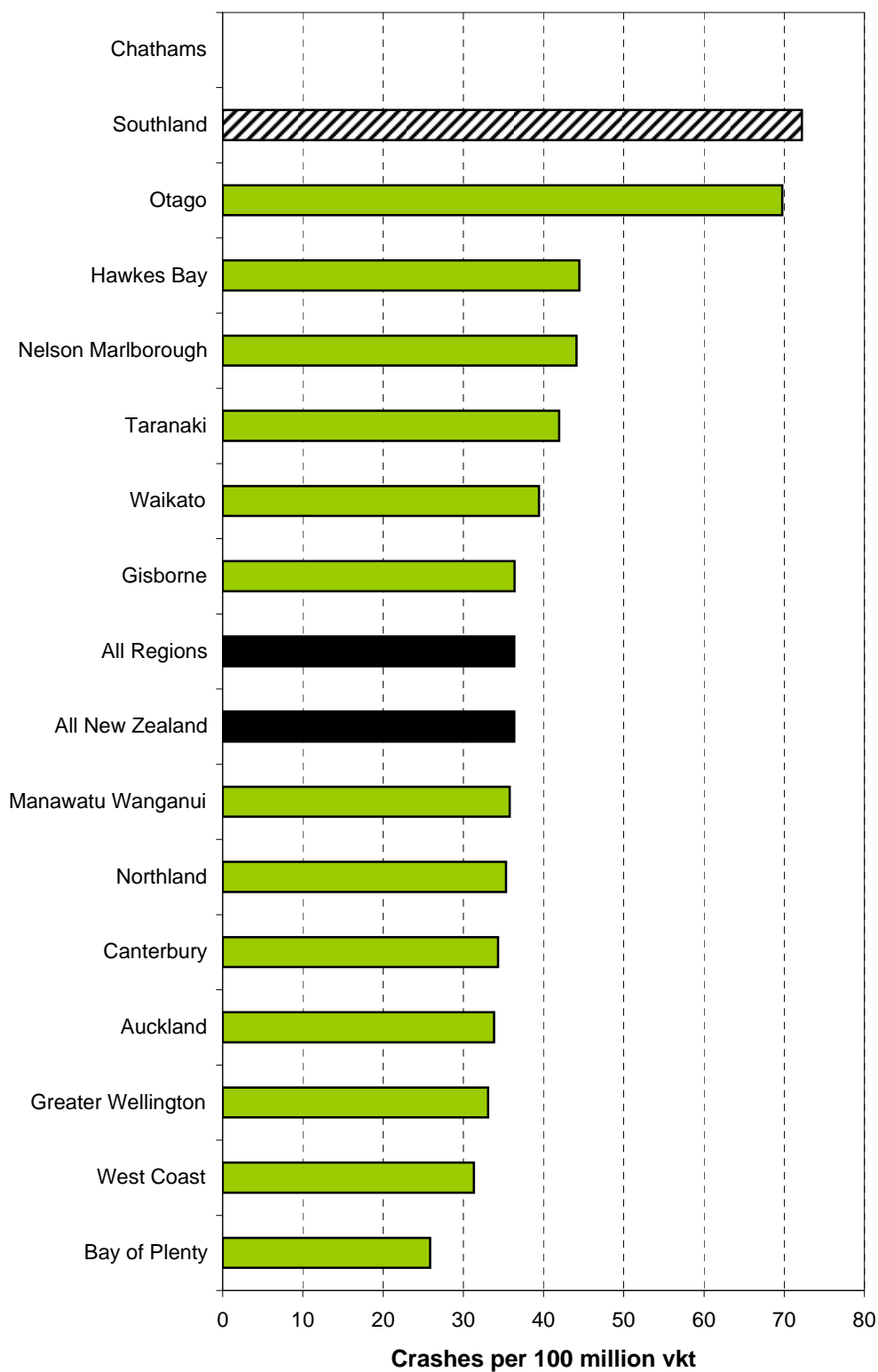


Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural local roads

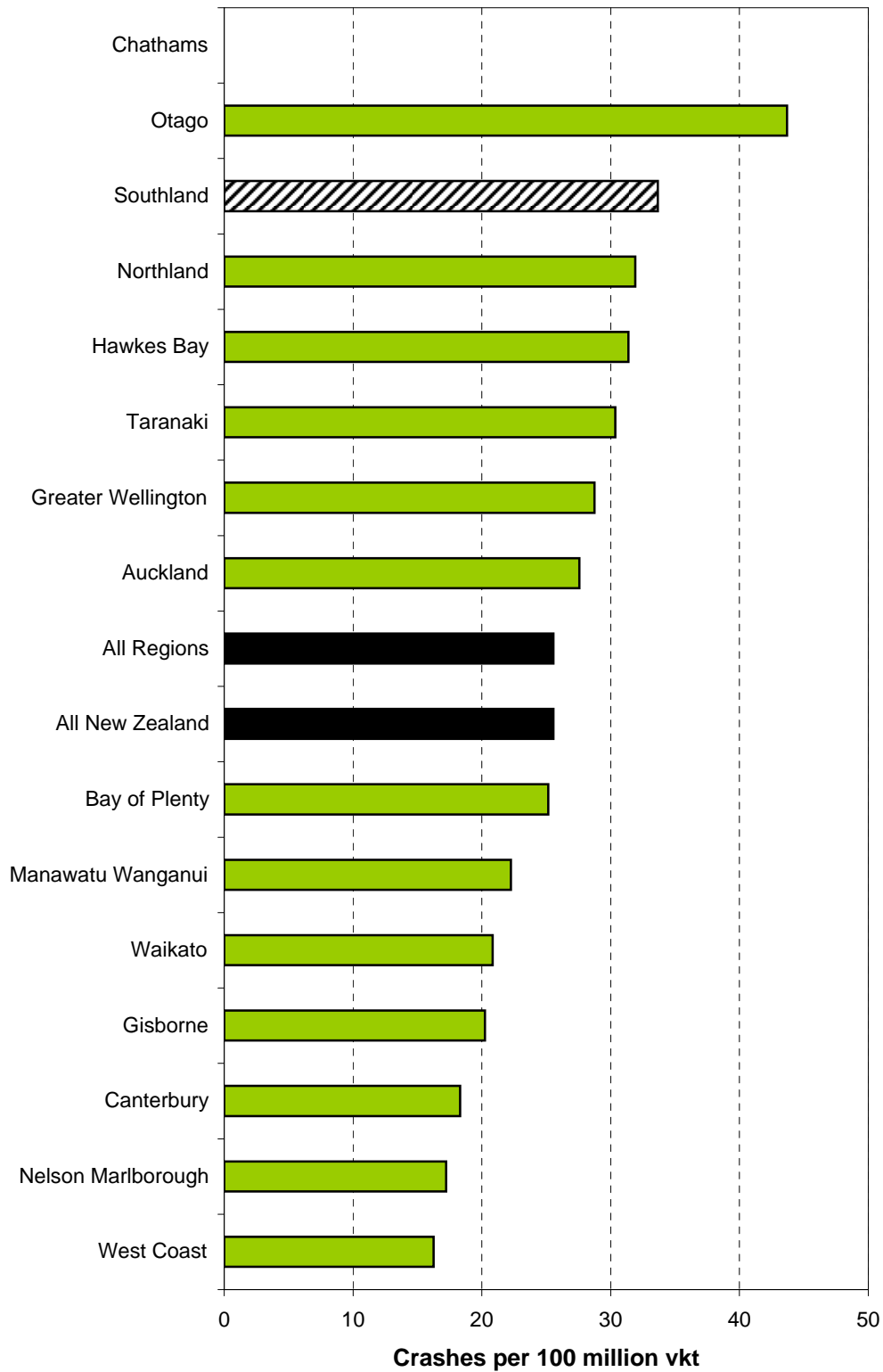
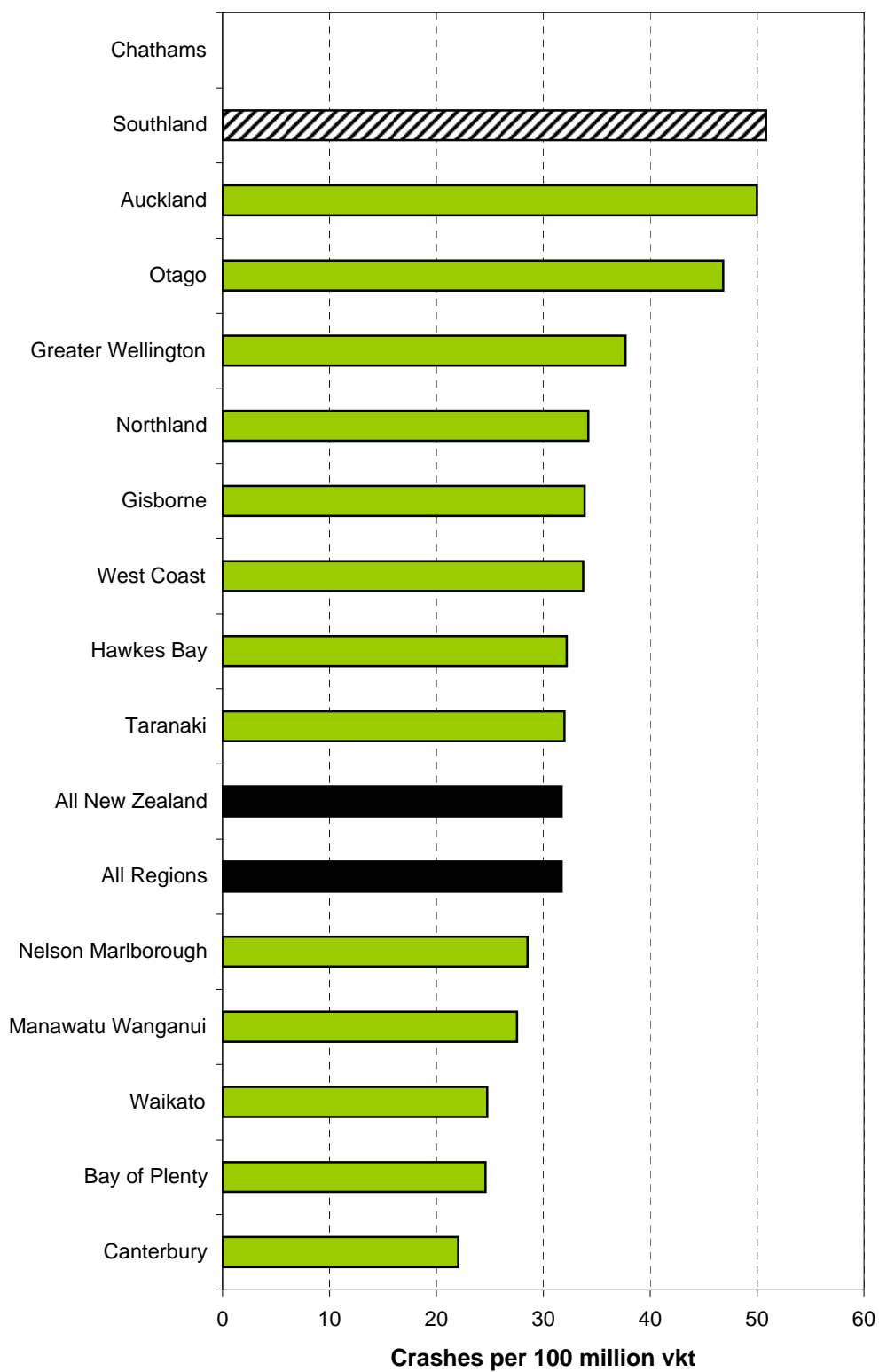
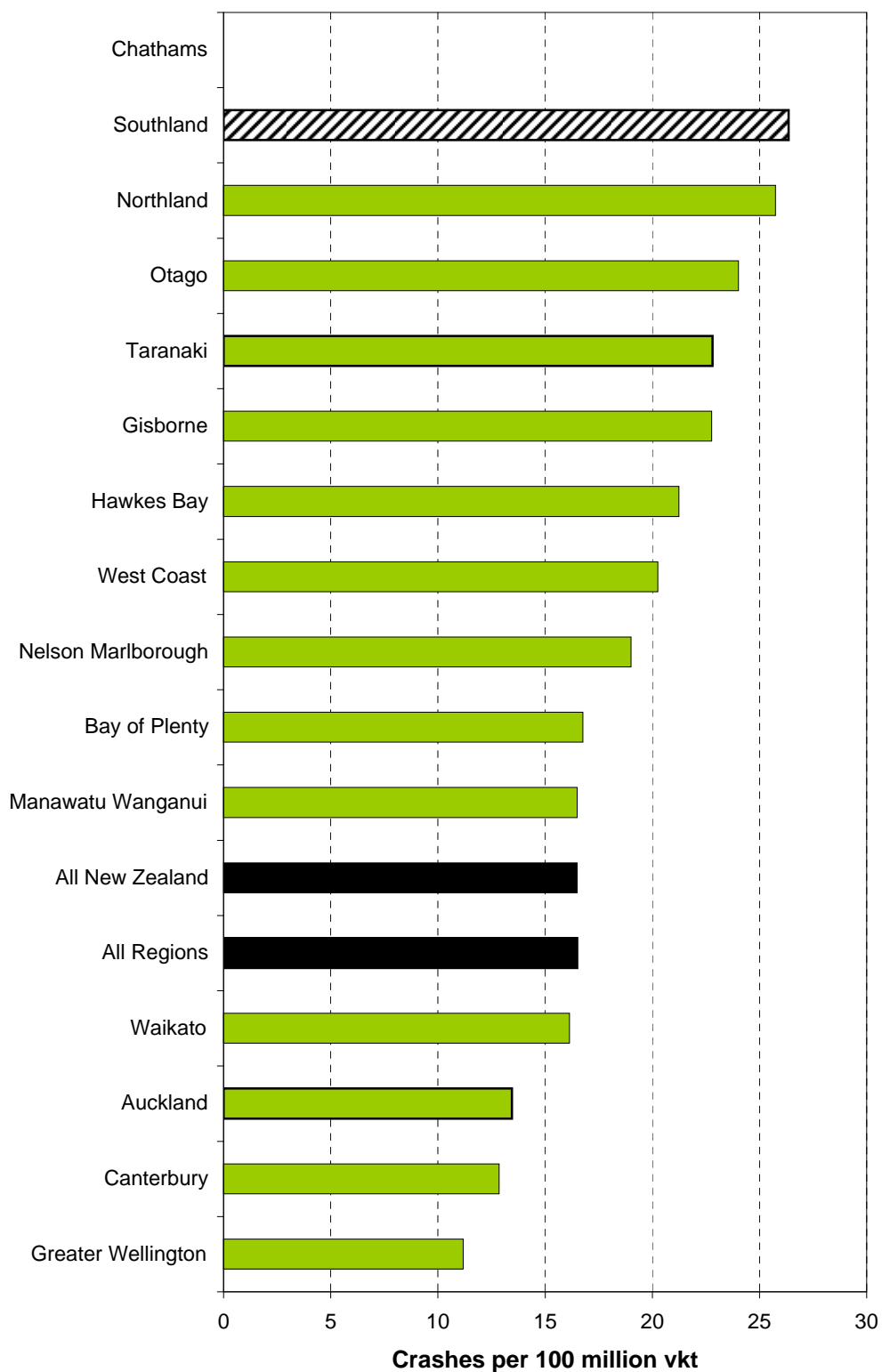


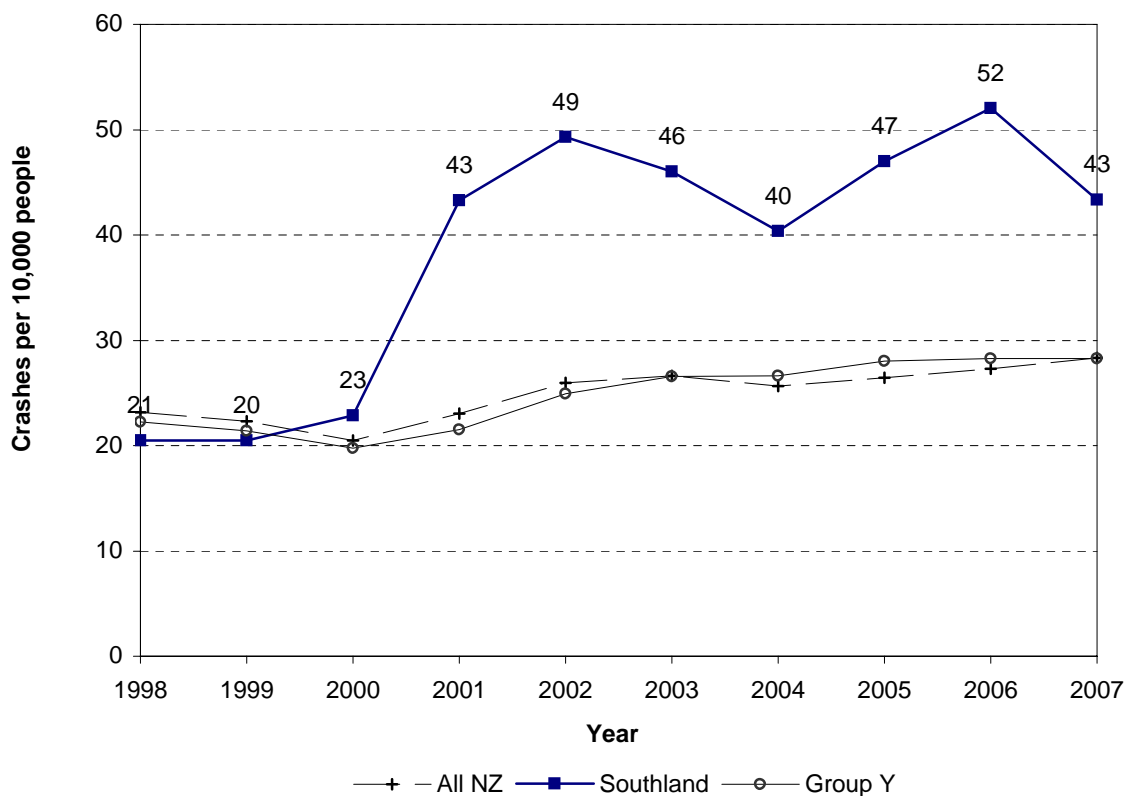
Figure 1.7 Crashes per 100 million vehicle kilometres travelled - urban state highways



**Figure 1.8 Crashes per 100 million vehicle-kilometres travelled
- rural state highways**



**Figure 1.9 Crashes per 10,000 people
Southland Region**



**Figure 1.10 Casualties per 10,000 people
Southland Region**

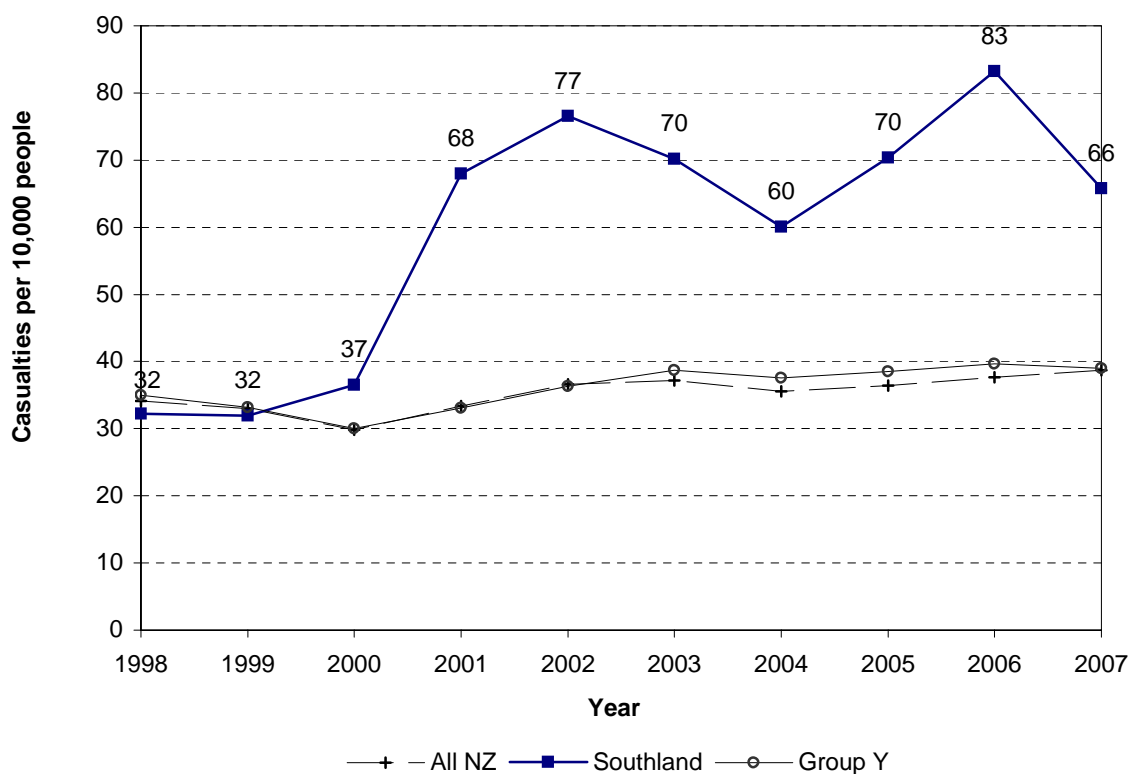


Figure 1.11 Social cost of crashes in Southland Region in 2007

		Southland Region	New Zealand
Local roads	urban	\$32.97	\$1,609.18
	rural	\$33.45	\$891.74
State highways	urban	\$14.87	\$323.26
	rural	\$47.32	\$1,533.31
Total		\$128.62	\$4,357.48

Note: Crash costs are in \$ millions

The social costs of a road crash and the associated injuries include a number of different elements:

- Loss of life and life quality
- Loss of output due to temporary incapacitation
- Medical costs
- Legal costs
- Property damage costs

The average value of a loss of life due to a road crash is estimated by the amount of money the New Zealand population would be willing to pay for a safety improvement that would result in the expected avoidance of one premature death. This is the willingness to pay based value of statistical life or VOSL. The VOSL was established at \$2 million in 1991. This has been indexed to the average hourly earnings (ordinary time) to express the value in current dollars. The updated VOSL is \$3.19 million (in June 2007 dollars). Based on several international and New Zealand studies on VOSL, the average loss of life quality for permanent impairments due to a serious and a minor injury were estimated to be 10% and 0.4% of the VOSL respectively.

Crash rates can vary due to reporting rates. These are adjusted on a regional basis in this report by comparing with hospitalisation rates.

The other social cost components are estimated based on a number of studies conducted during the early to mid-1990s and are updated for price changes by indexing to an appropriate price index.

For a detail discussion on this, please refer to 'The social cost of road crashes and injuries: June 2007 update', available at the Ministry of Transport's website:
[http://www.transport.govt.nz/socialcost/Social-cost-June-2007-update\[1\].pdf](http://www.transport.govt.nz/socialcost/Social-cost-June-2007-update[1].pdf)

The average social cost per reported crash (in June 2007 dollars) are estimated at:

Rural fatal crash	\$4,016,000
Rural serious crash	\$735,000
Rural minor crash	\$88,000
Urban fatal crash	\$3,539,000
Urban serious crash	\$626,000
Urban minor crash	\$79,000

These values include an allowance for non-reported injury crashes, and the totals in Fig. 1.11 also include an allowance for non-injury crashes.

Crash counts

Figure 2.1: Crash numbers and severity 2003 to 2007 - whole Region

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal crashes	12	8	6	10	10	46	2%	4%
Serious crashes	117	93	123	128	93	554	26%	20%
Minor crashes	304	279	311	347	300	1541	72%	75%
Total injury crashes	433	380	440	485	403	2141	100%	100%
Non-injury crashes	516	512	517	488	546	2579		

Figure 2.2: Crash numbers and severity 2003 to 2007 - urban roads

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal crashes	2	4	0	0	2	8	1%	2%
Serious crashes	44	43	45	62	36	230	21%	16%
Minor crashes	168	173	165	202	158	866	78%	82%
Total injury crashes	214	220	210	264	196	1104	100%	100%
Non-injury crashes	367	336	369	332	385	1789		

Figure 2.3: Crash numbers and severity 2003 to 2007 - rural roads

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal crashes	10	4	6	10	8	38	4%	7%
Serious crashes	73	50	78	66	57	324	31%	24%
Minor crashes	136	106	146	145	142	675	65%	69%
Total injury crashes	219	160	230	221	207	1037	100%	100%
Non-injury crashes	149	176	148	156	161	790		

Figure 2.4: Casualty numbers and severity 2003 to 2007 - whole Region

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal casualties	15	8	6	10	11	50	2%	4%
Serious casualties	143	103	146	159	114	665	20%	18%
Minor casualties	502	454	507	607	487	2557	78%	78%
Total casualties	660	565	659	776	612	3272	100%	100%

Figure 2.5: Casualty numbers and severity 2003 to 2007 - urban roads

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal casualties	2	4	0	0	2	8	1%	1%
Serious casualties	50	45	49	74	42	260	17%	15%
Minor casualties	249	255	244	318	233	1299	83%	84%
Total casualties	301	304	293	392	277	1567	100%	100%

Figure 2.6: Casualty numbers and severity 2003 to 2007 - rural roads

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal casualties	13	4	6	10	9	42	2%	5%
Serious casualties	93	58	97	85	72	405	24%	21%
Minor casualties	253	199	263	289	254	1258	74%	73%
Total casualties	359	261	366	384	335	1705	100%	100%

Figure 2.7 Number of injury crashes
Southland Region all roads (urban & rural)

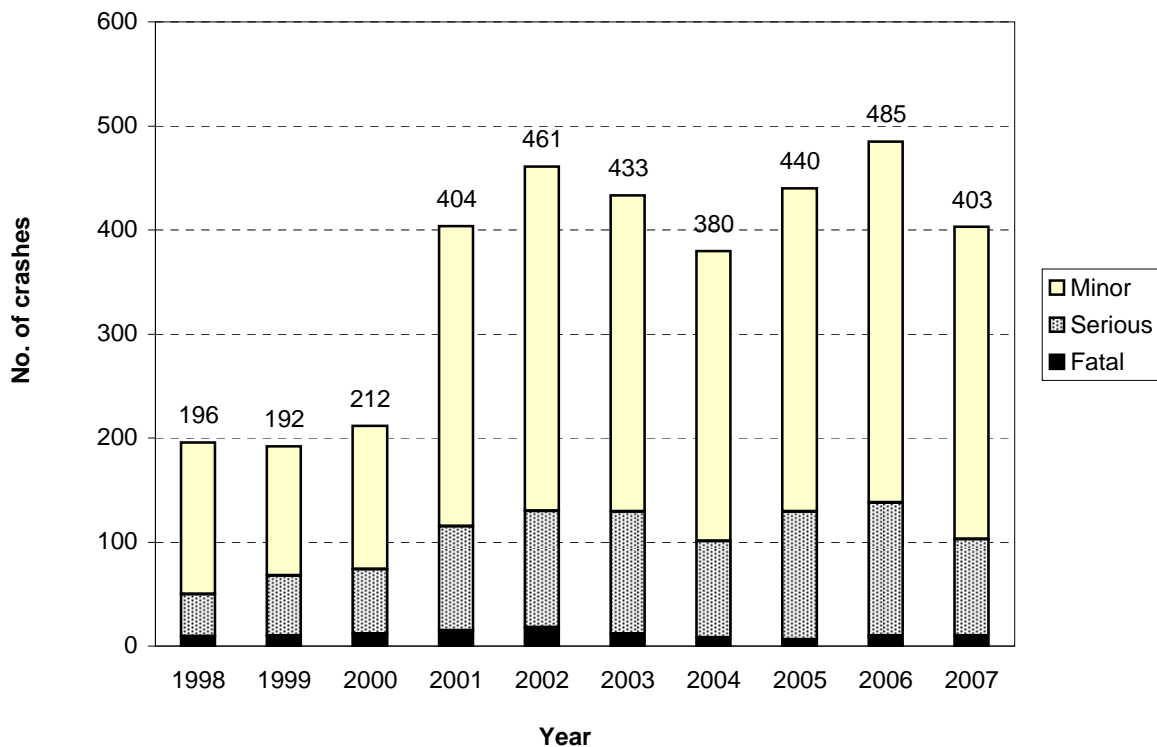
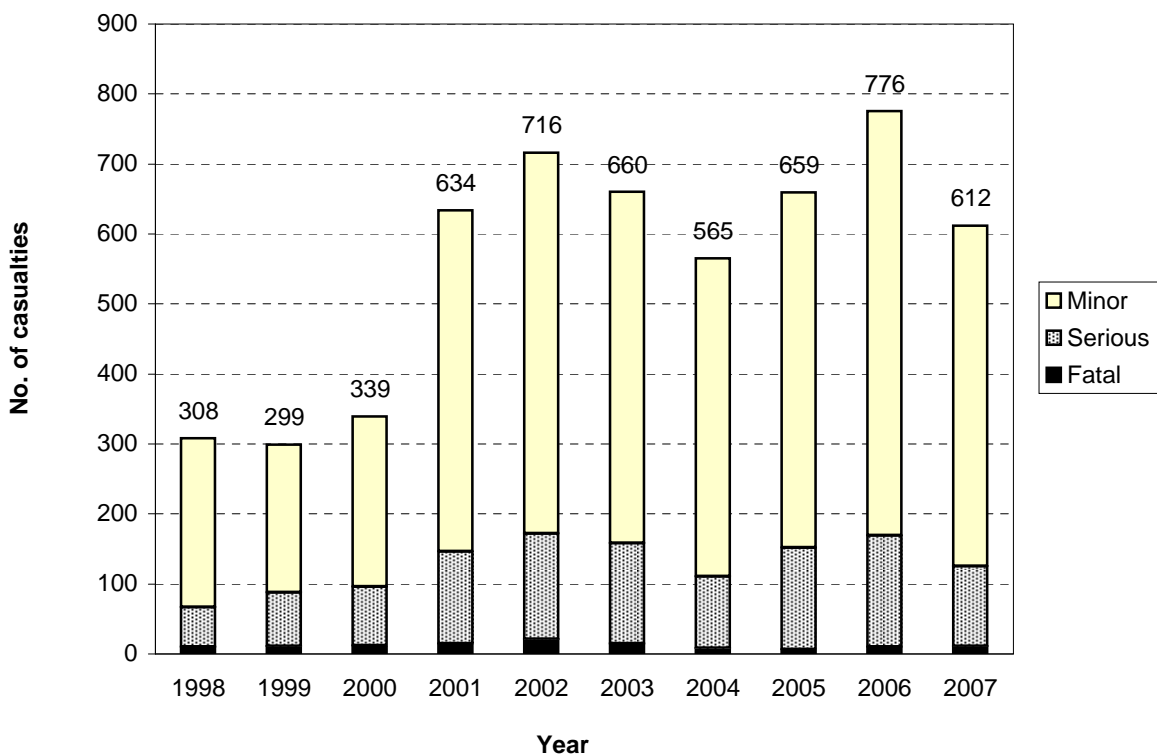
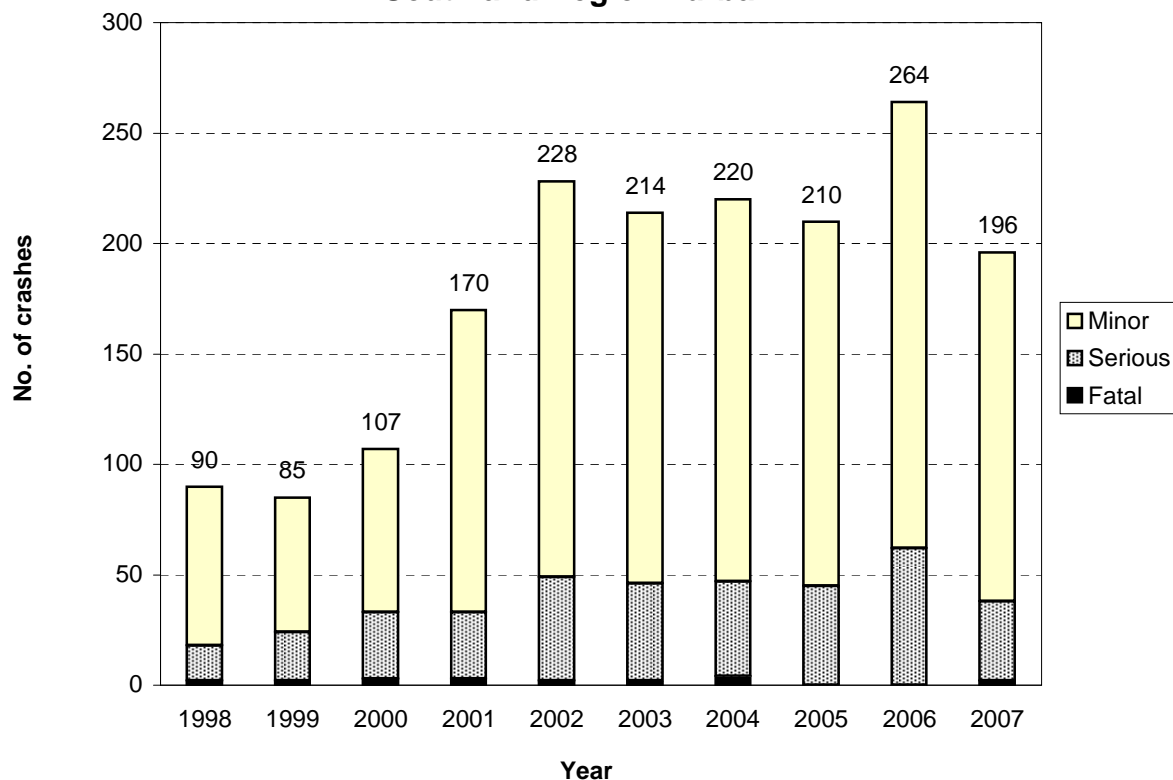


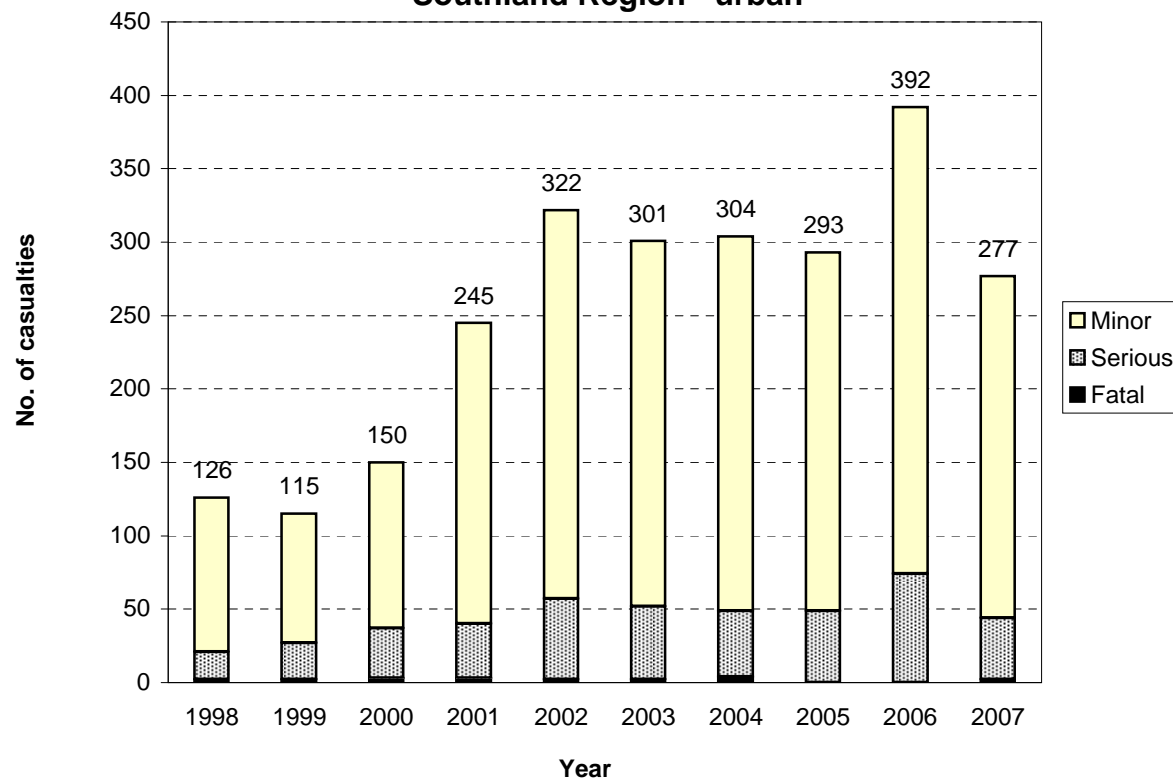
Figure 2.8 Number of casualties
Southland Region all roads (urban & rural)



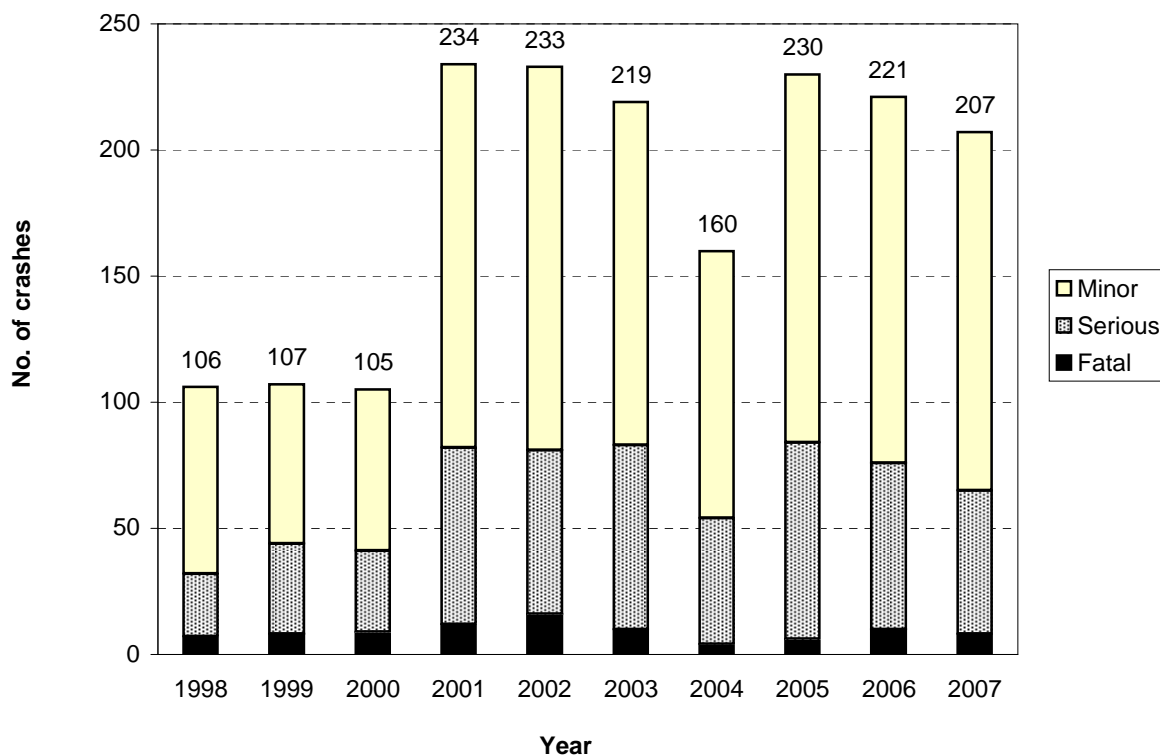
**Figure 2.9 Number of injury crashes
Southland Region - urban**



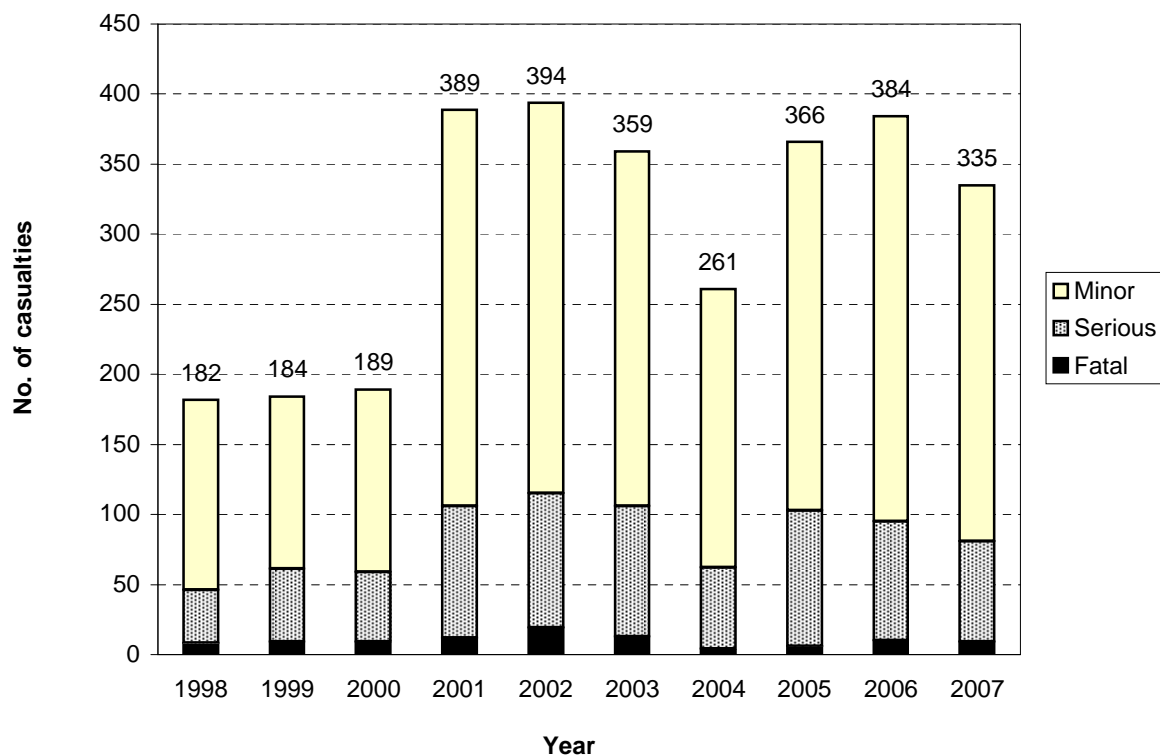
**Figure 2.10 Number of casualties
Southland Region - urban**



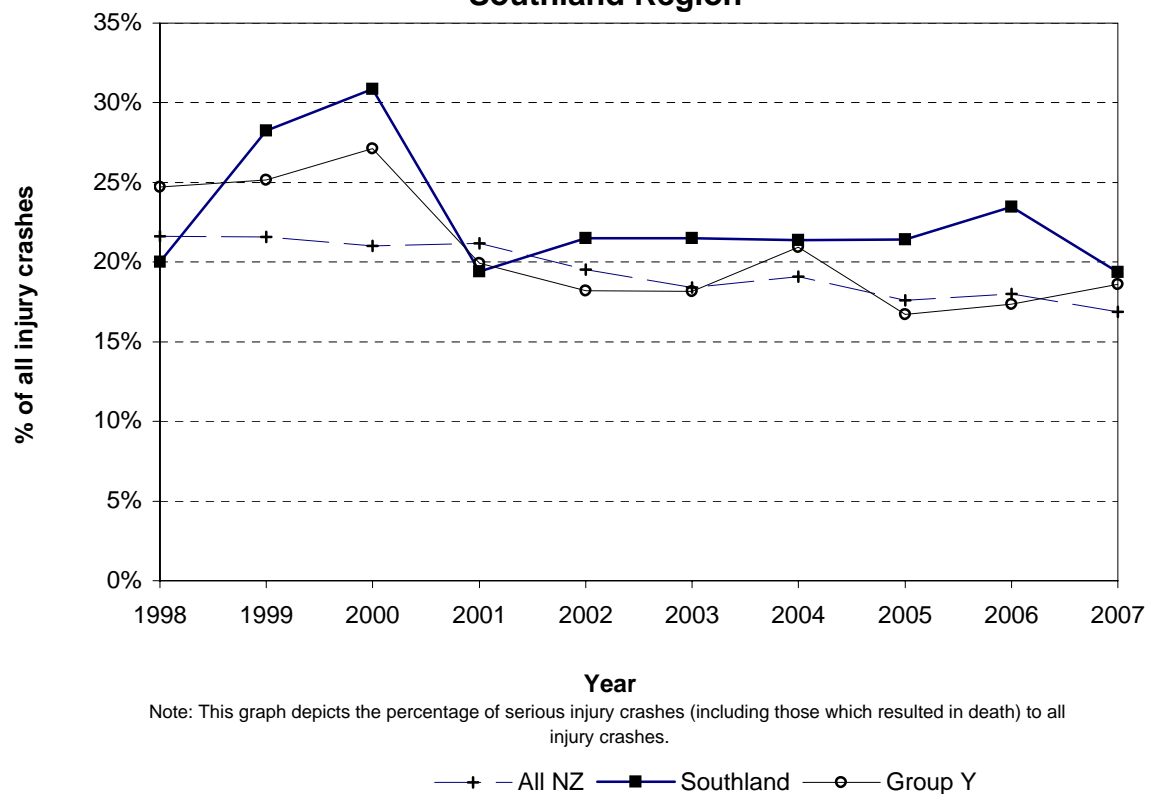
**Figure 2.11 Number of injury crashes
Southland Region - rural**



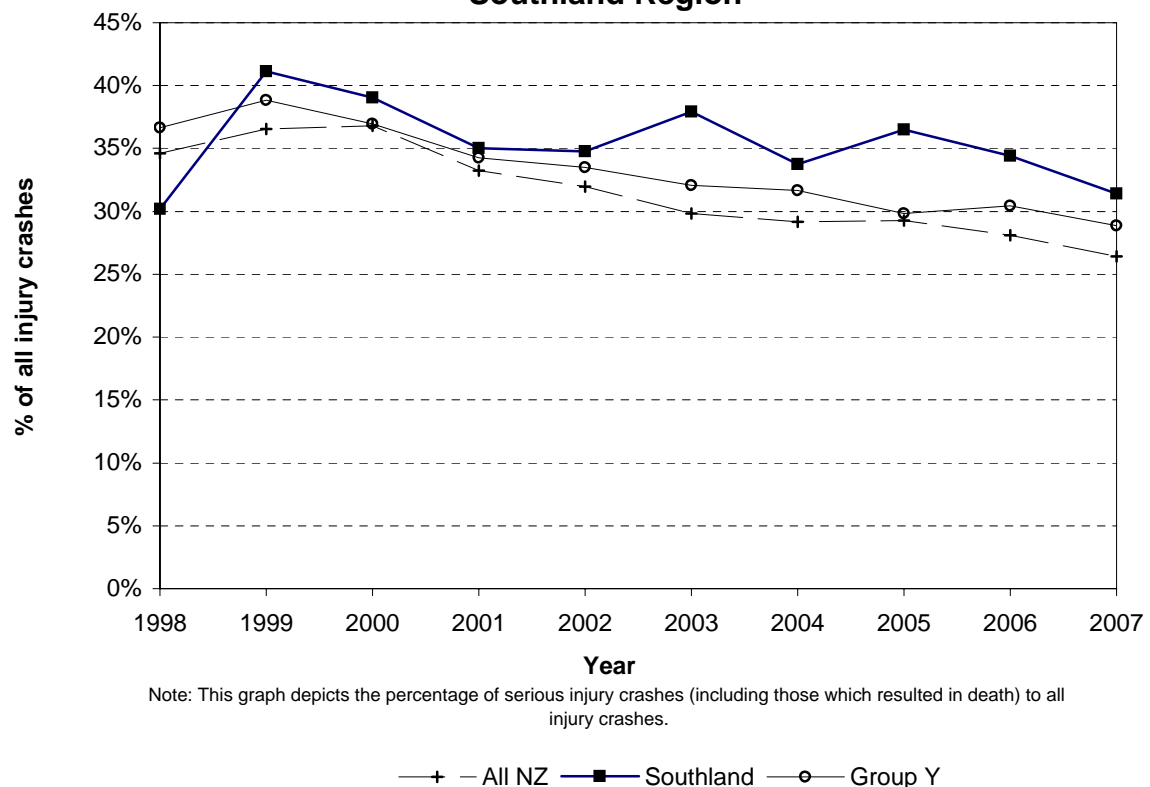
**Figure 2.12 Number of casualties
Southland Region - rural**



**Figure 2.13 Severity ratio - urban
Southland Region**

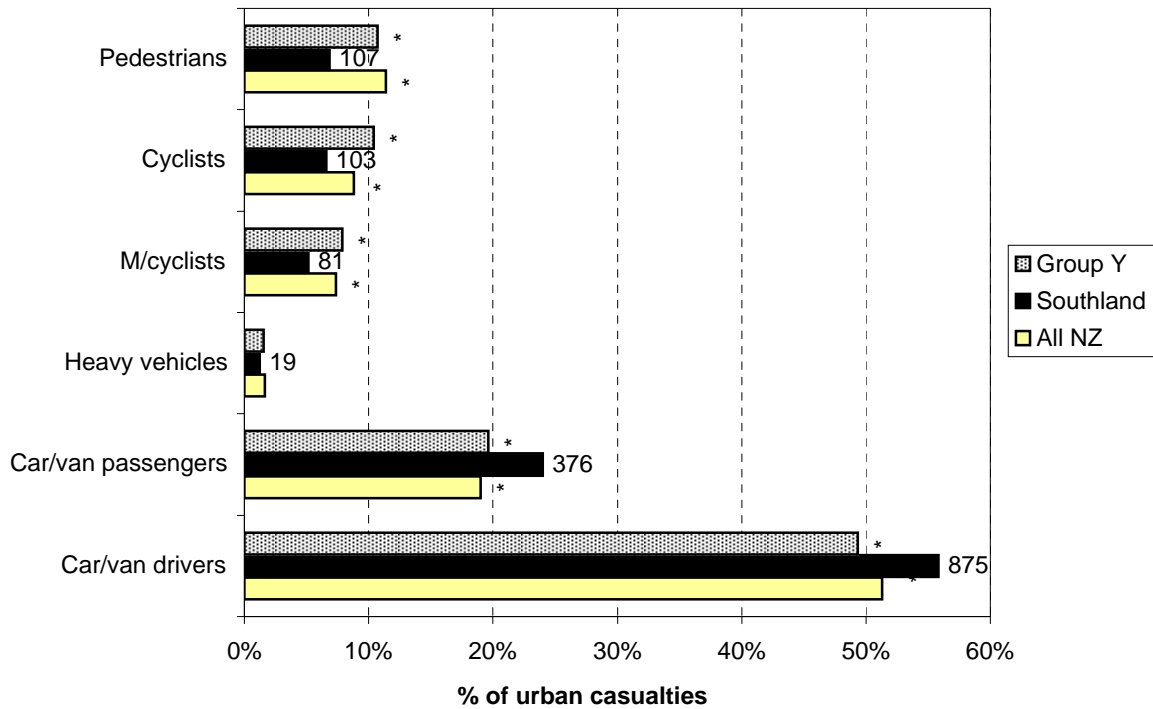


**Figure 2.14 Severity ratio - rural
Southland Region**

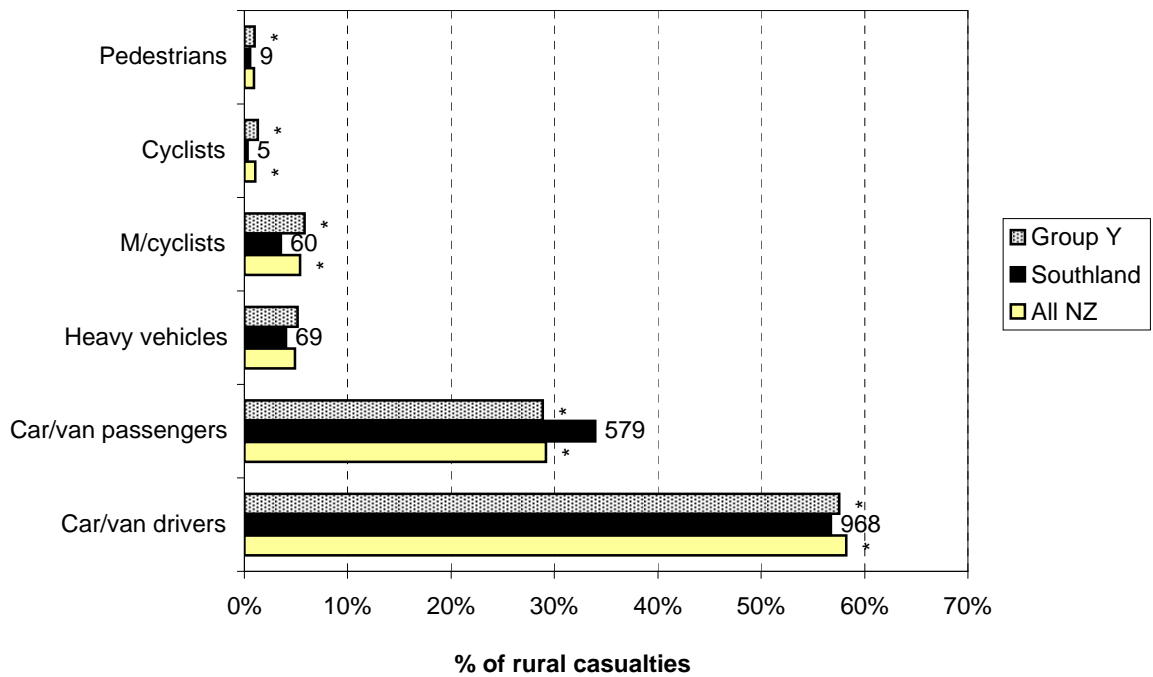


Road user statistics

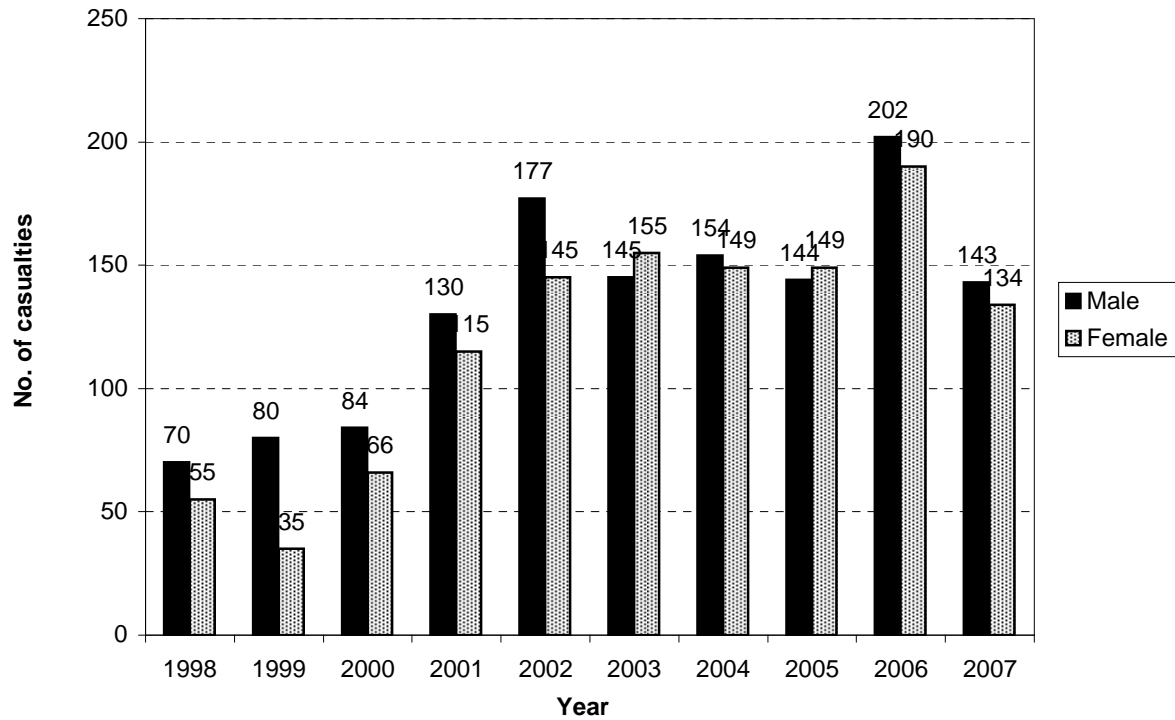
**Figure 3.1 Road user casualties - urban
Southland Region (2003-2007)**



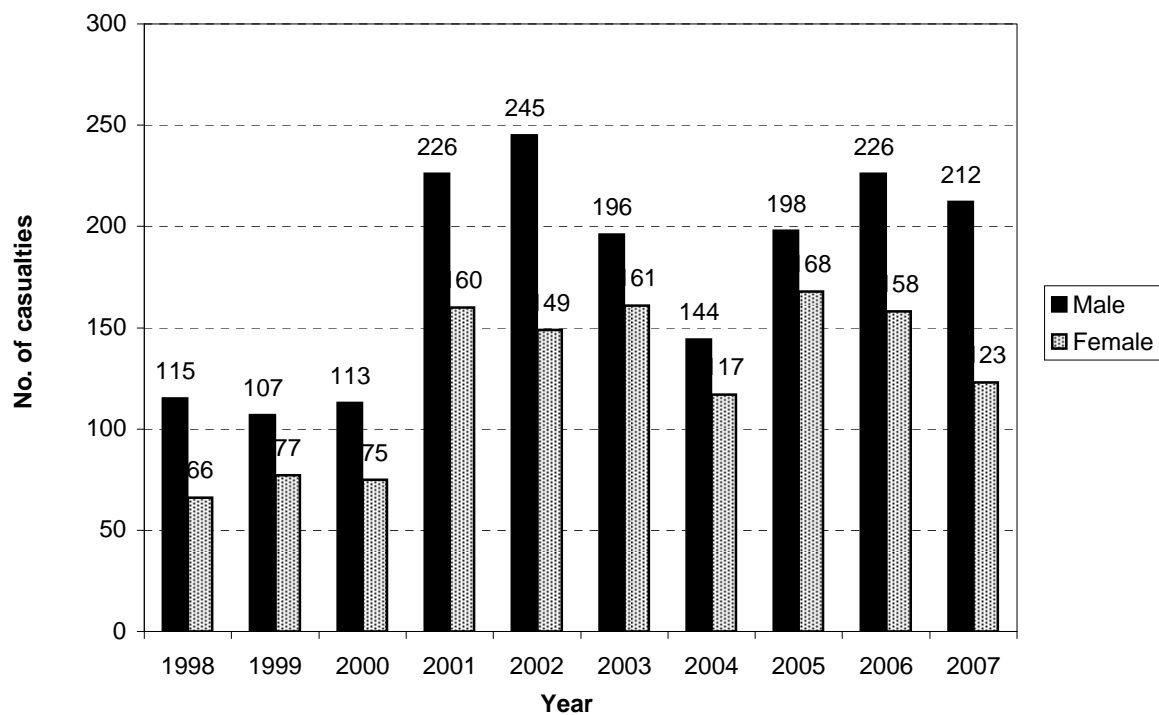
**Figure 3.2 Road user casualties - rural
Southland Region (2003-2007)**



**Figure 3.3 Male/female casualties - urban
Southland Region**

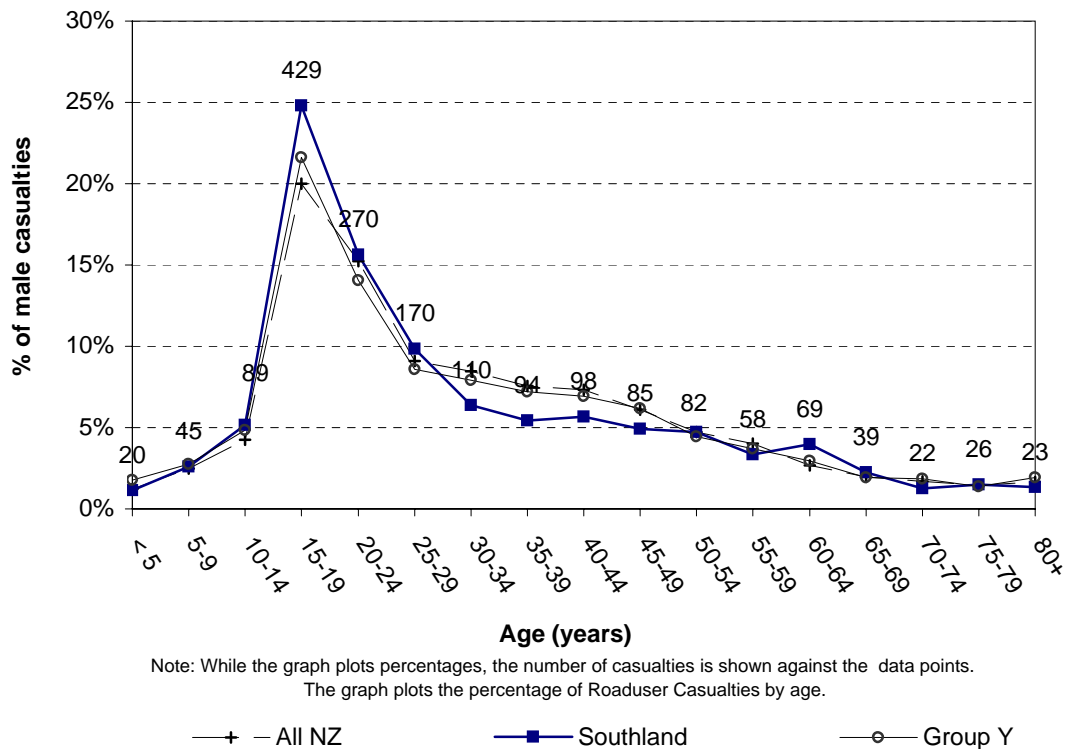


**Figure 3.4 Male/female casualties - rural
Southland Region**

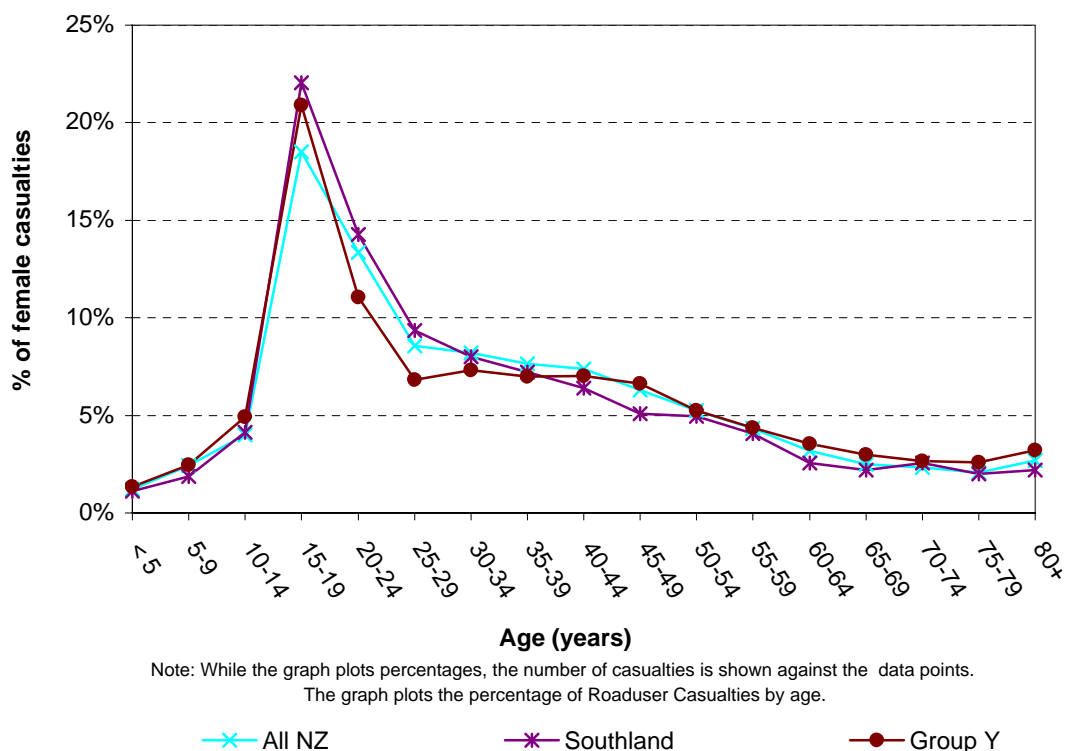




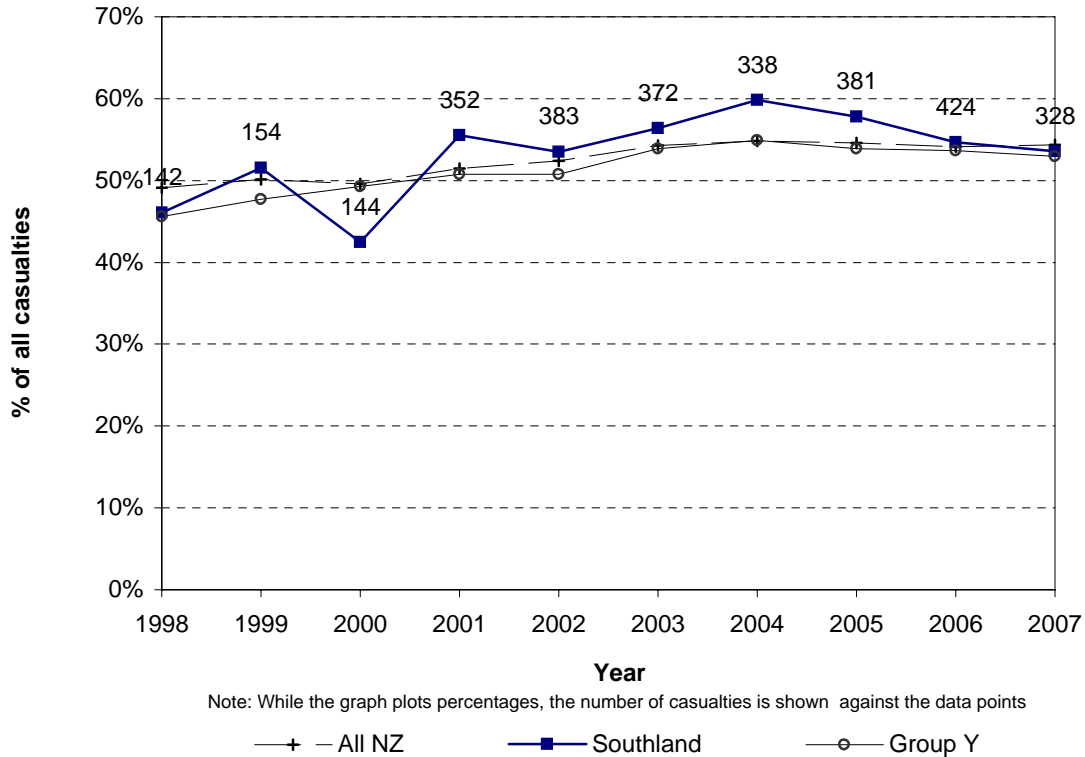
**Figure 3.5 Male casualties by age
Southland Region (2003-2007)**



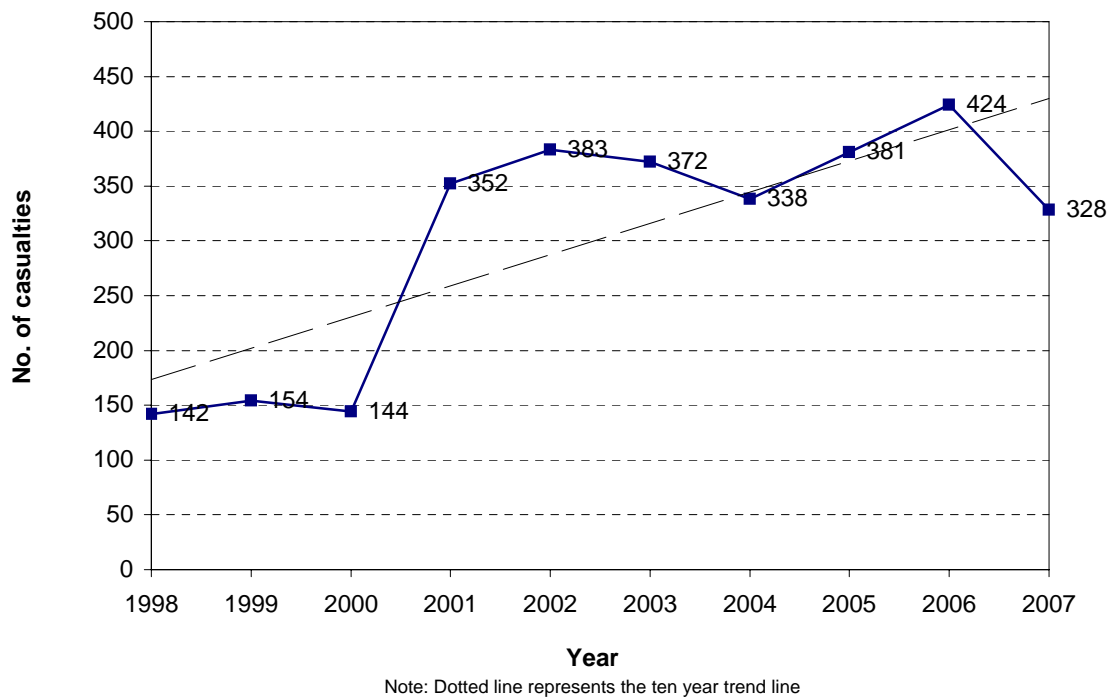
**Figure 3.6 Female casualties by age
Southland Region (2003-2007)**



**Figure 3.7 Car/van driver casualties
Southland Region**

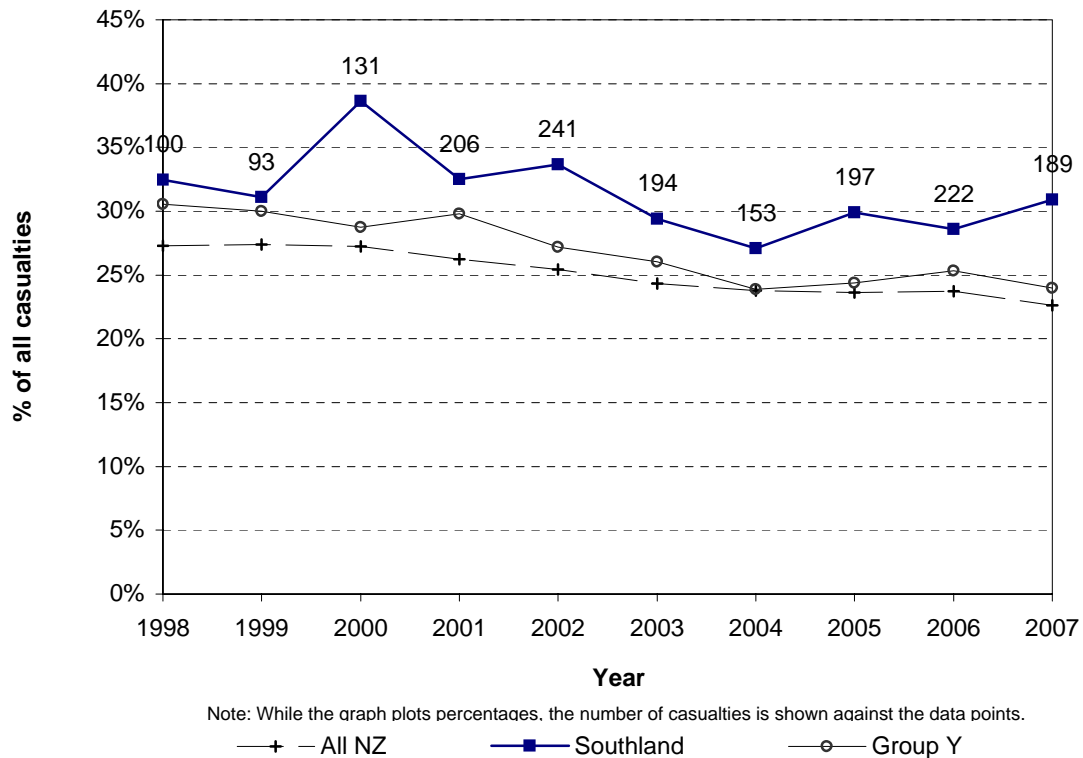


**Figure 3.8 Car/van driver casualties
Southland Region**

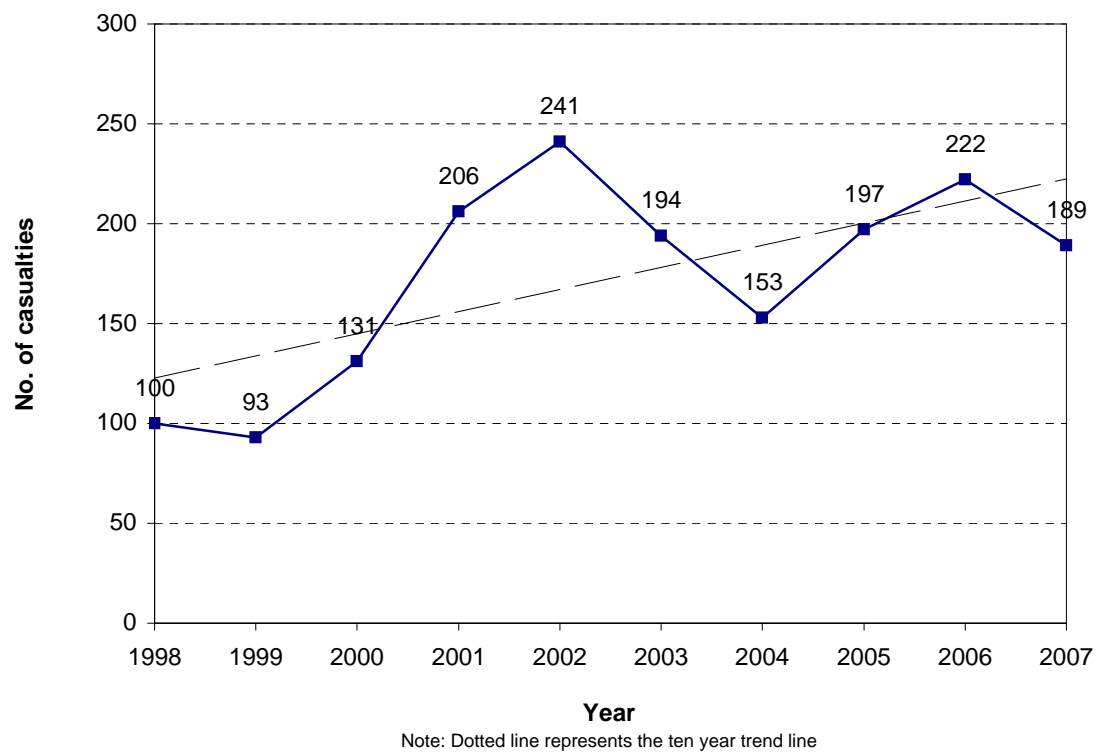




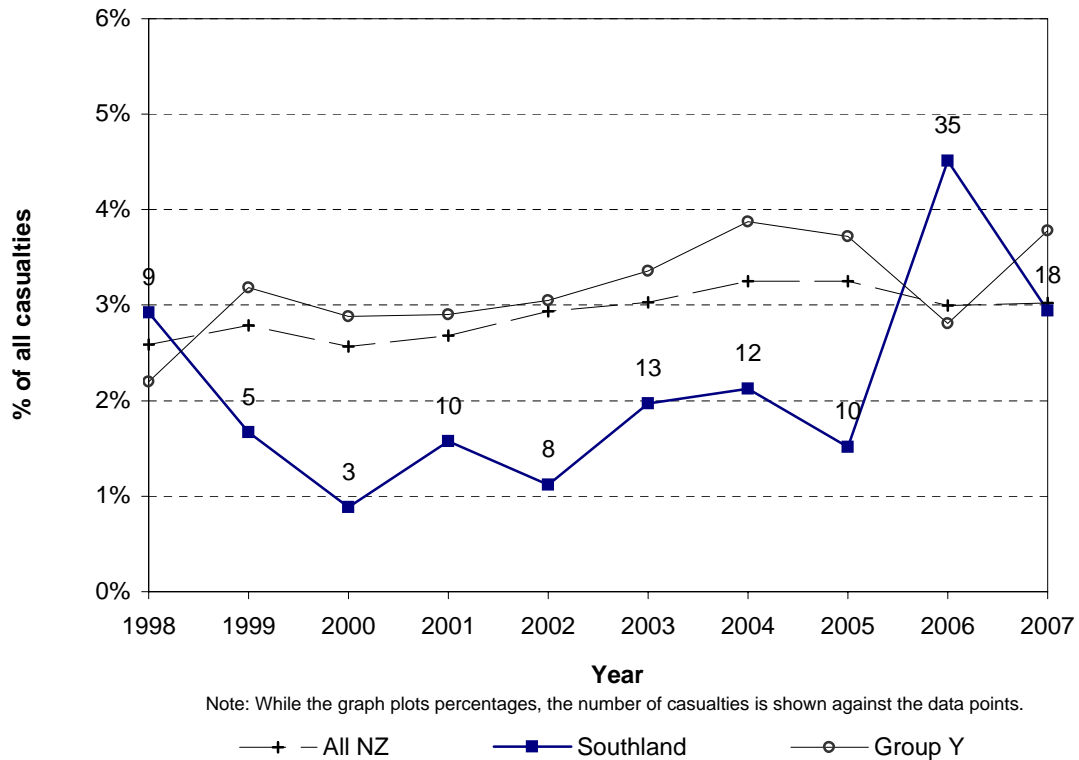
**Figure 3.9 Car/van passenger casualties
Southland Region**



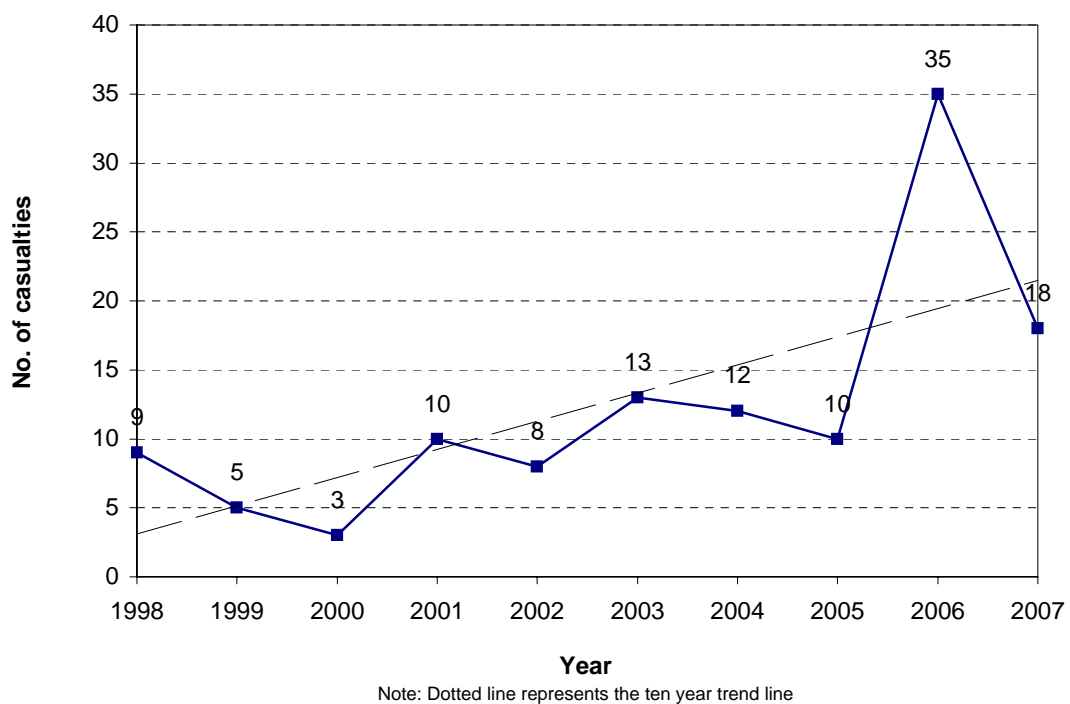
**Figure 3.10 Car/van passenger casualties
Southland Region**



**Figure 3.11 Heavy vehicle casualties
Southland Region**

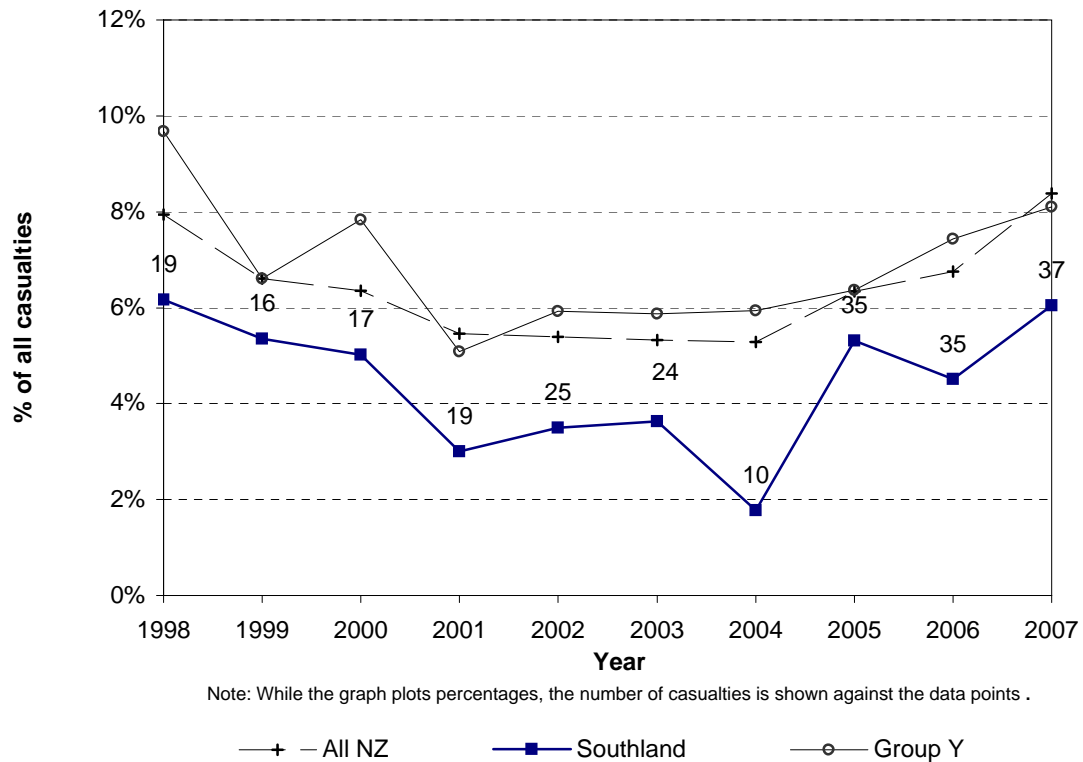


**Figure 3.12 Heavy vehicle casualties
Southland Region**

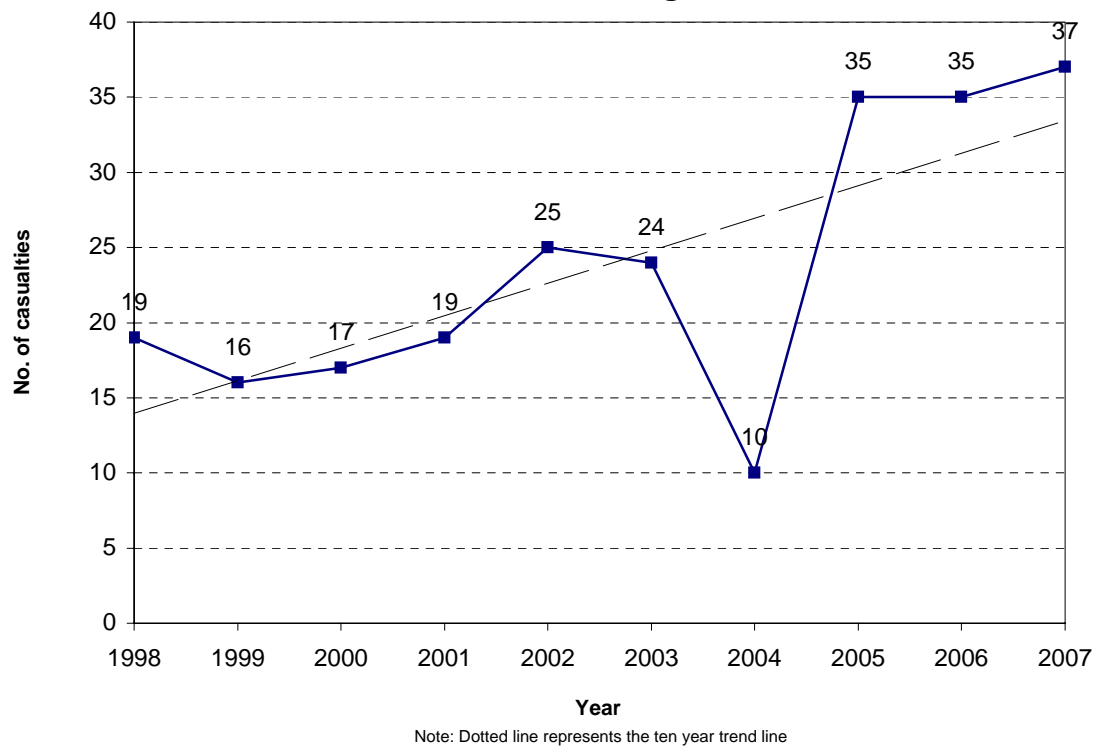




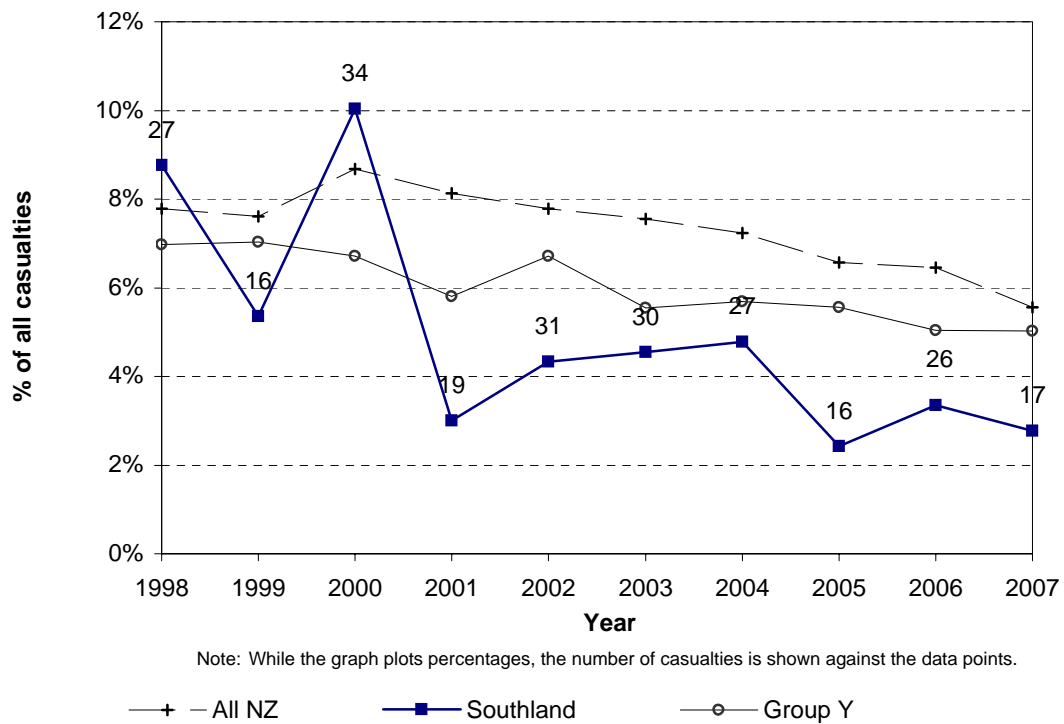
**Figure 3.13 Motorcyclist casualties
Southland Region**



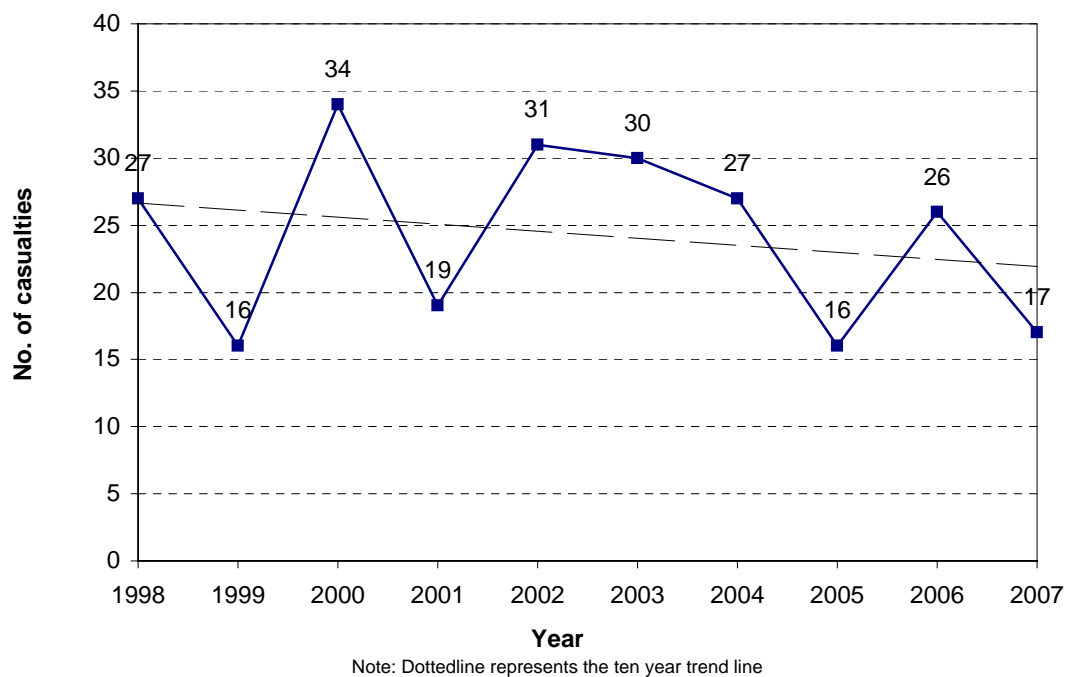
**Figure 3.14 Motorcyclist casualties
Southland Region**



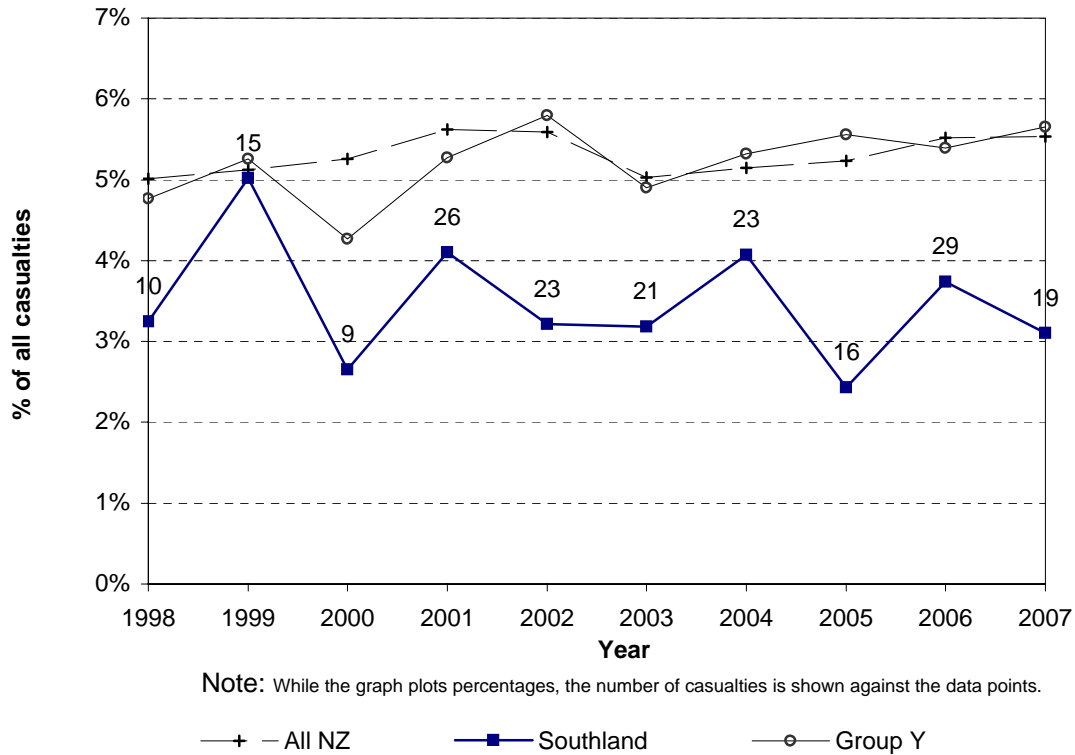
**Figure 3.15 Pedestrian casualties
Southland Region**



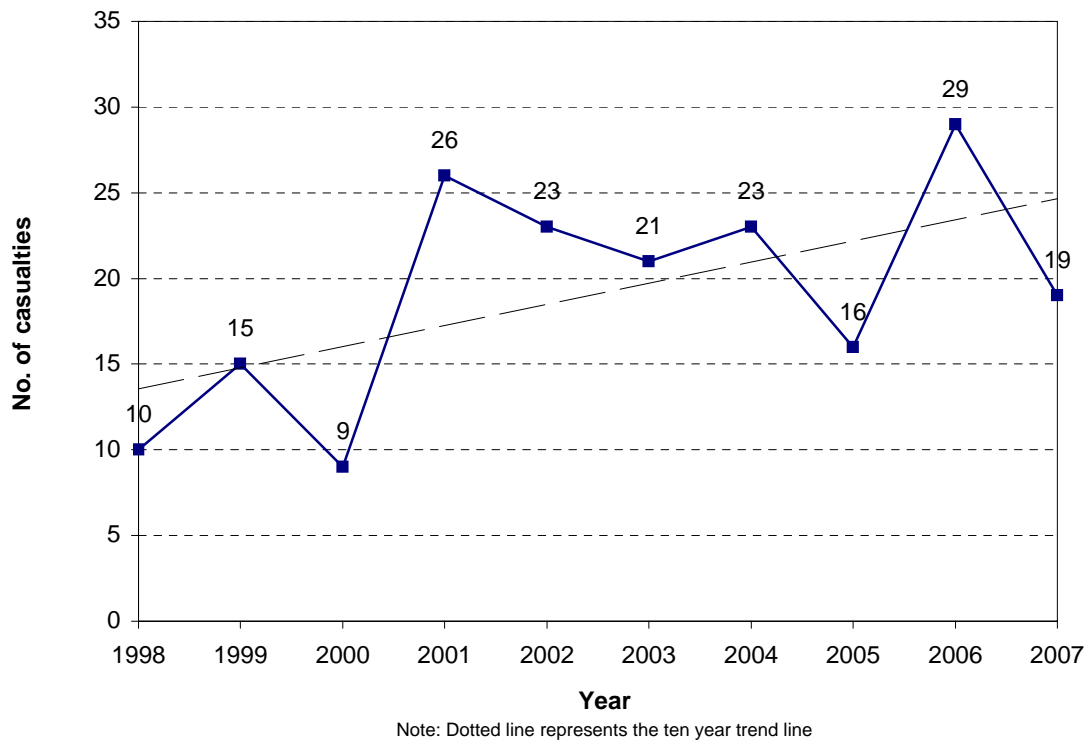
**Figure 3.16 Pedestrian casualties
Southland Region**



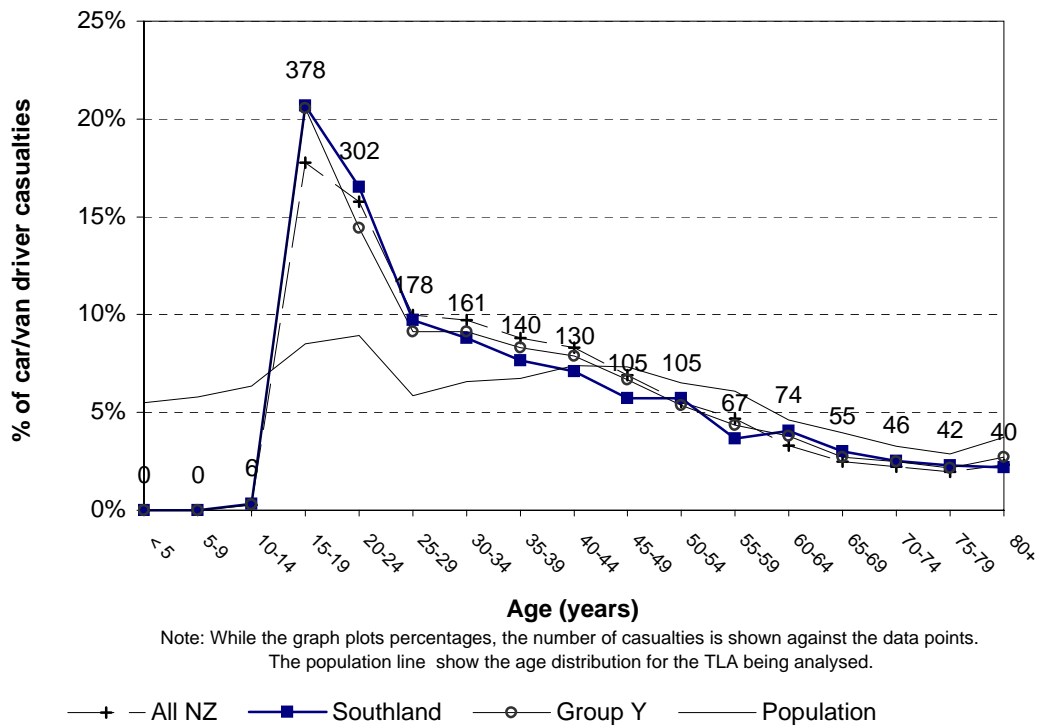
**Figure 3.17 Cyclist casualties
Southland Region**



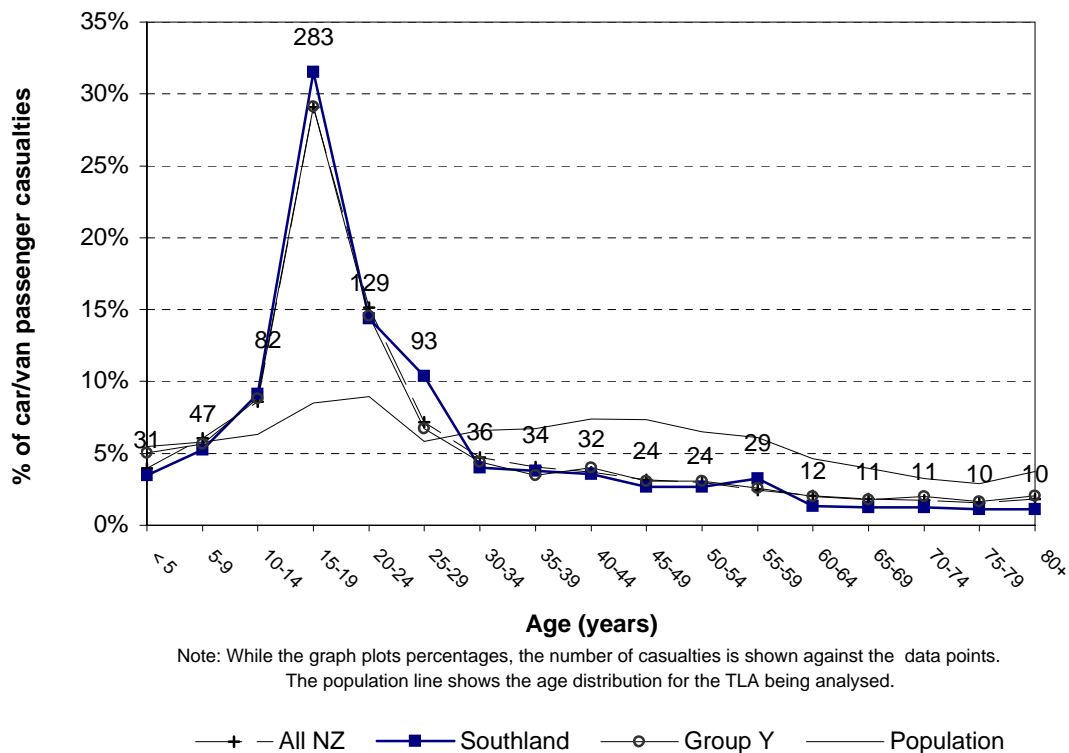
**Figure 3.18 Cyclist casualties
Southland Region**



**Figure 3.19 Car/van driver casualty age
Southland Region (2003-2007)**

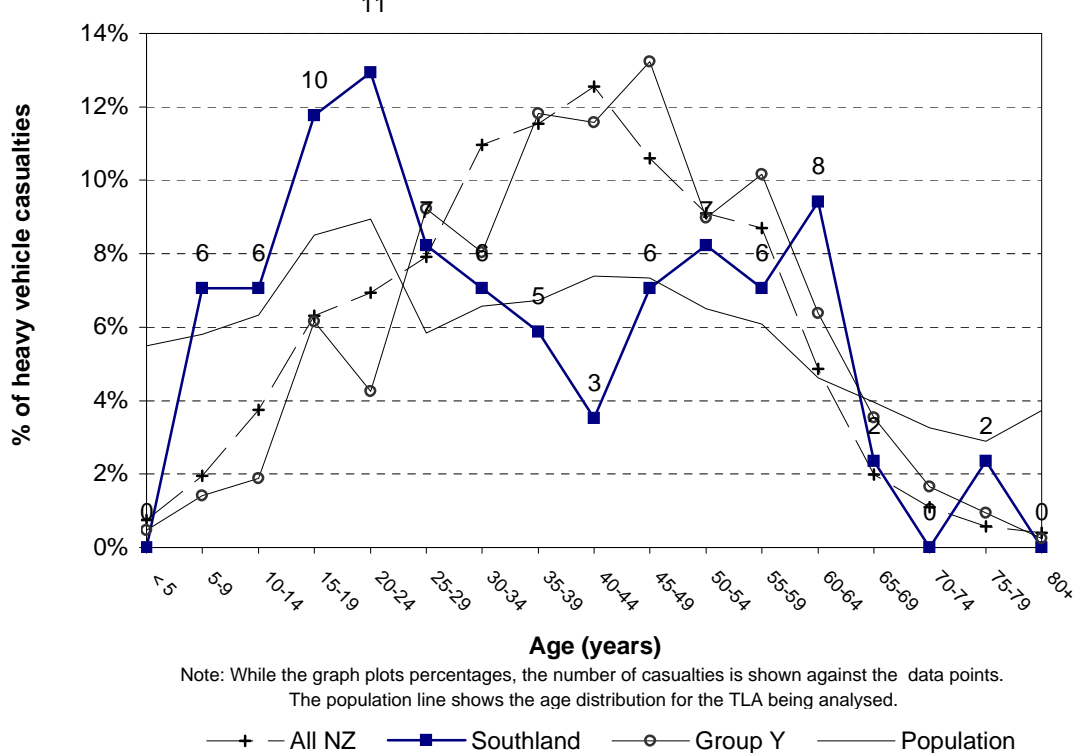


**Figure 3.20 Car/van passenger casualty age
Southland Region (2003-2007)**

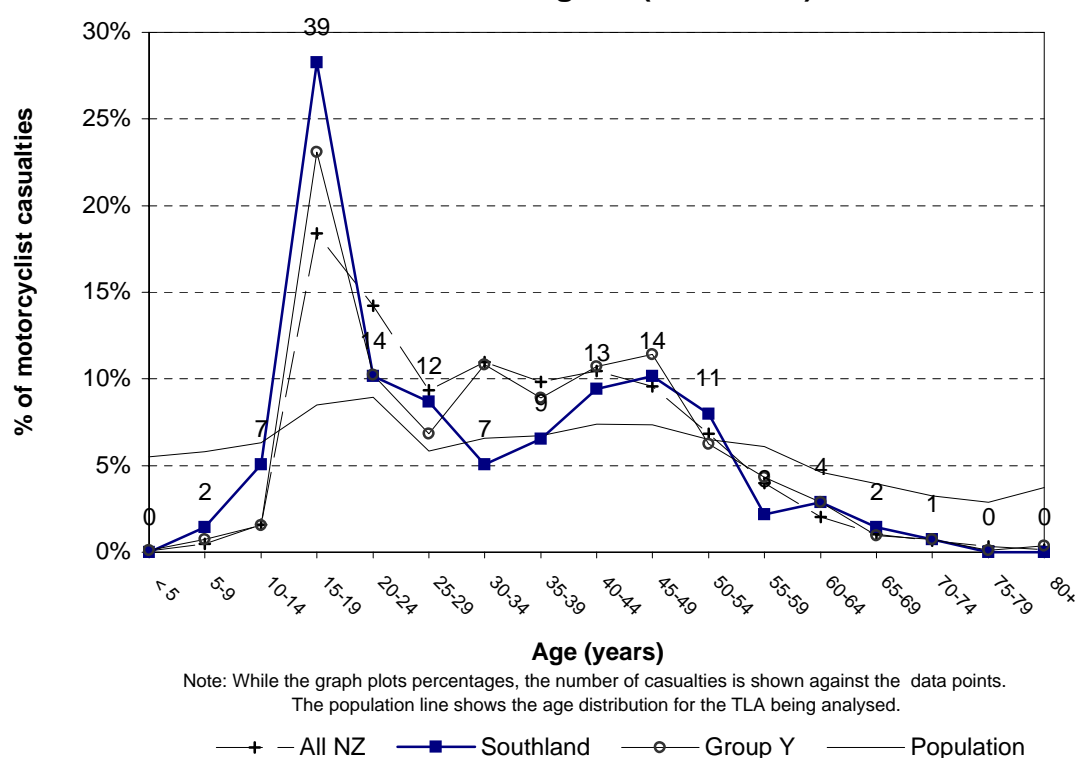




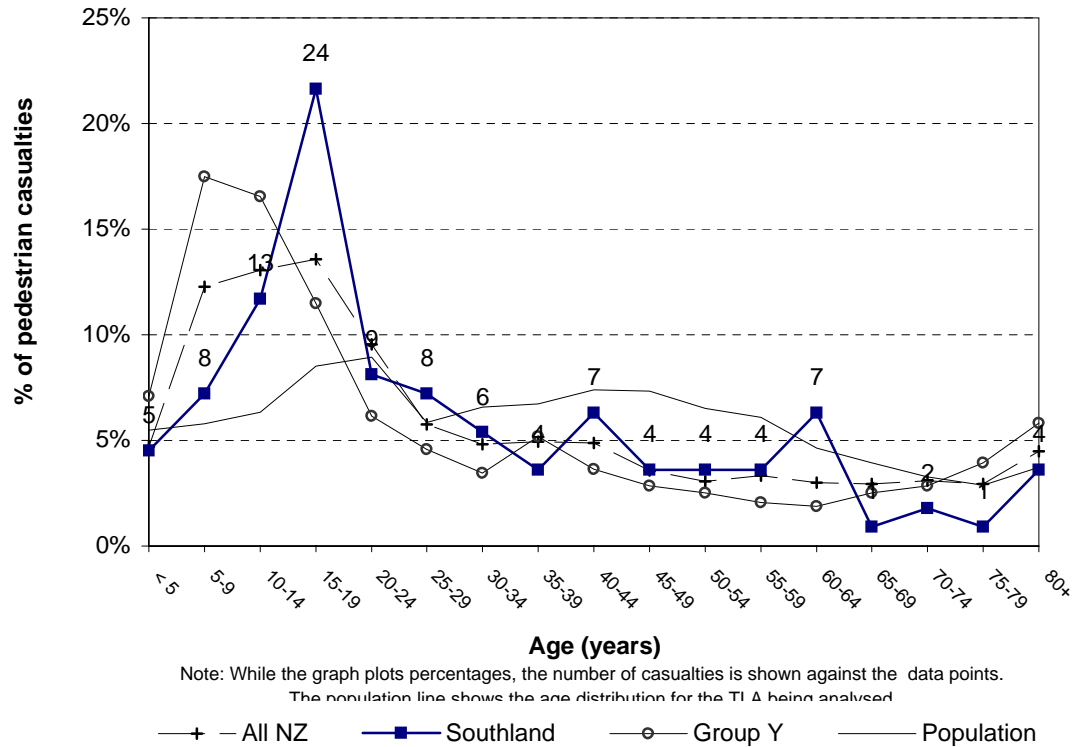
**Figure 3.21 Heavy vehicle casualty age
Southland Region (2003-2007)**



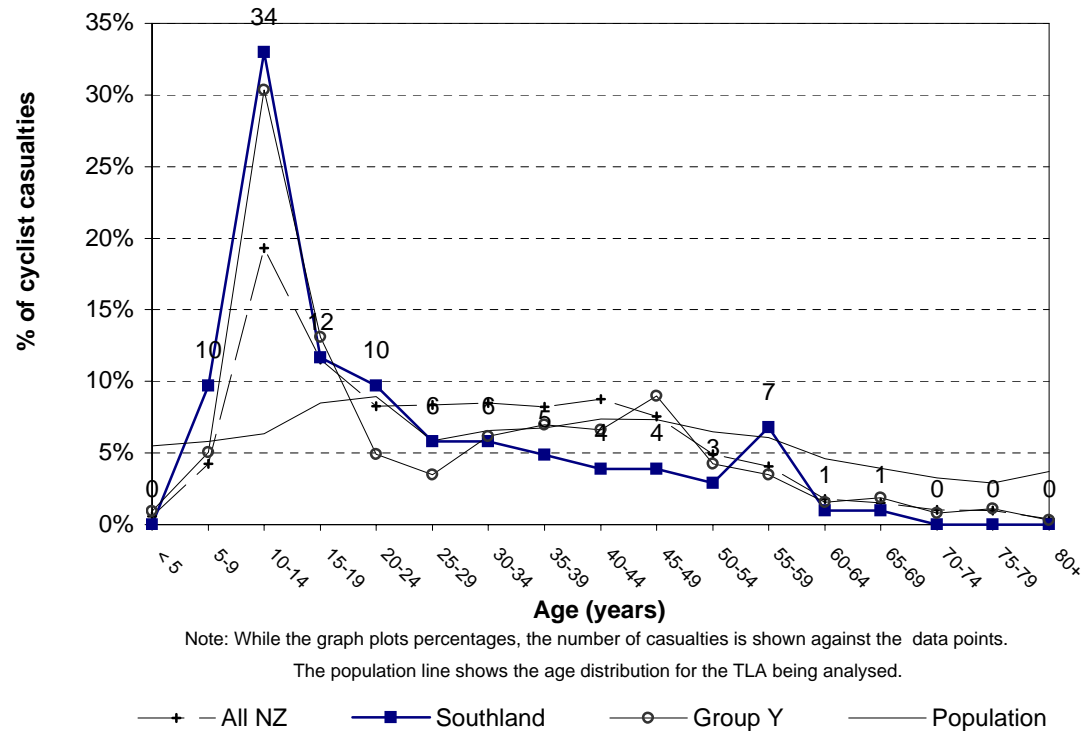
**Figure 3.22 Motorcyclist casualty age
Southland Region (2003-2007)**



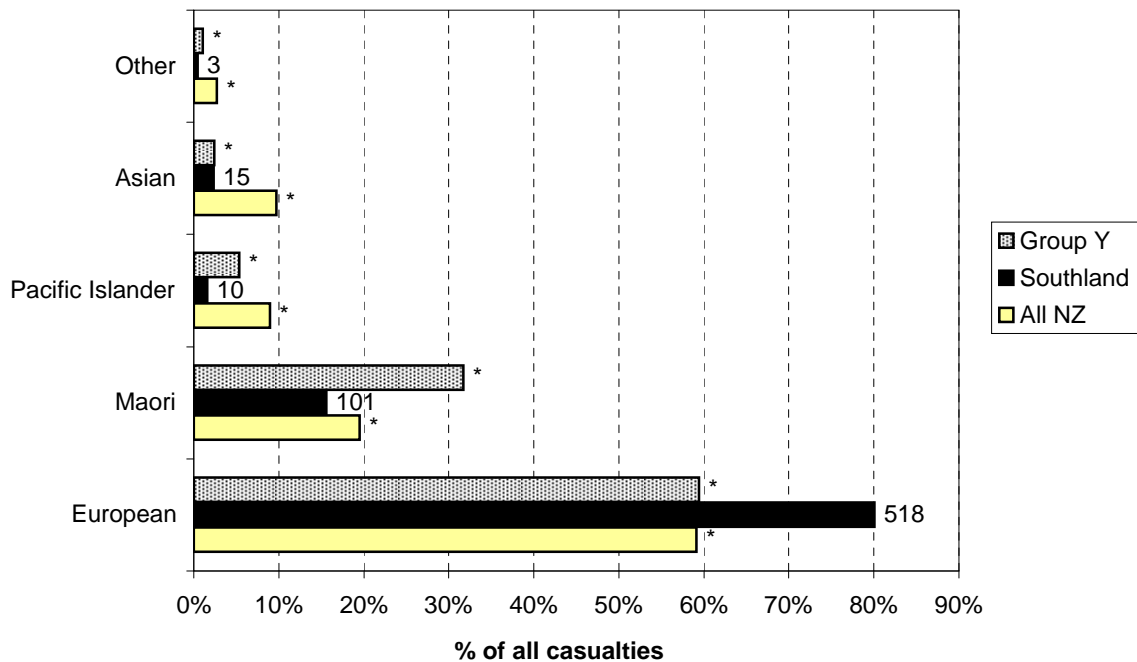
**Figure 3.23 Pedestrian casualty age
Southland Region (2003-2007)**



**Figure 3.24 Cyclist casualty age
Southland Region (2003-2007)**

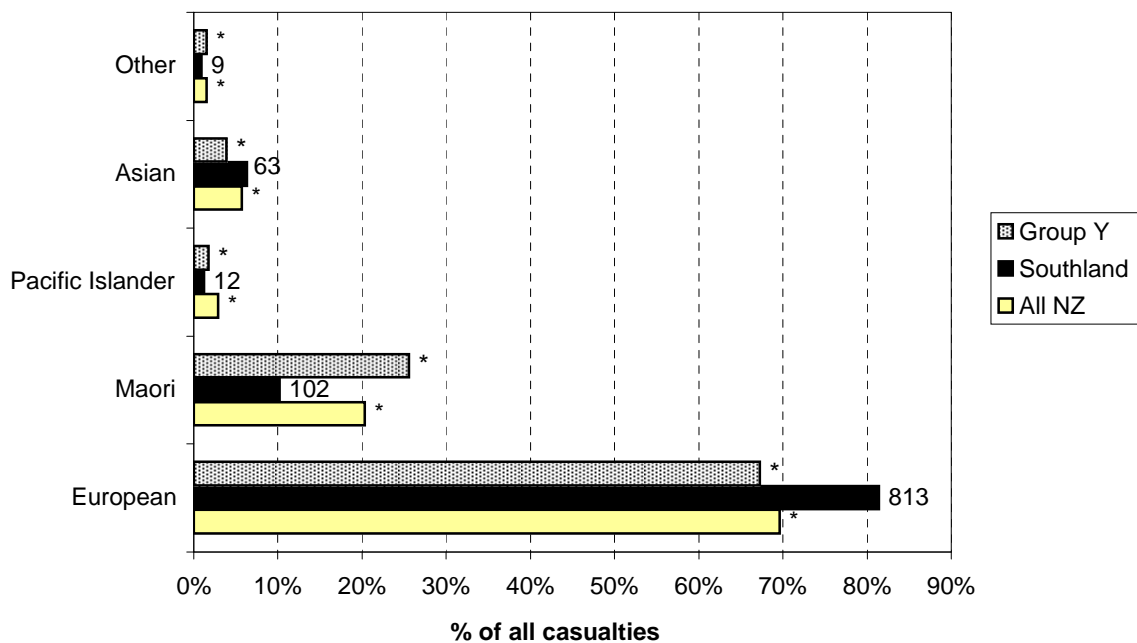


**Figure 3.25 Casualty ethnicity - urban
Southland Region (2003-2007)**



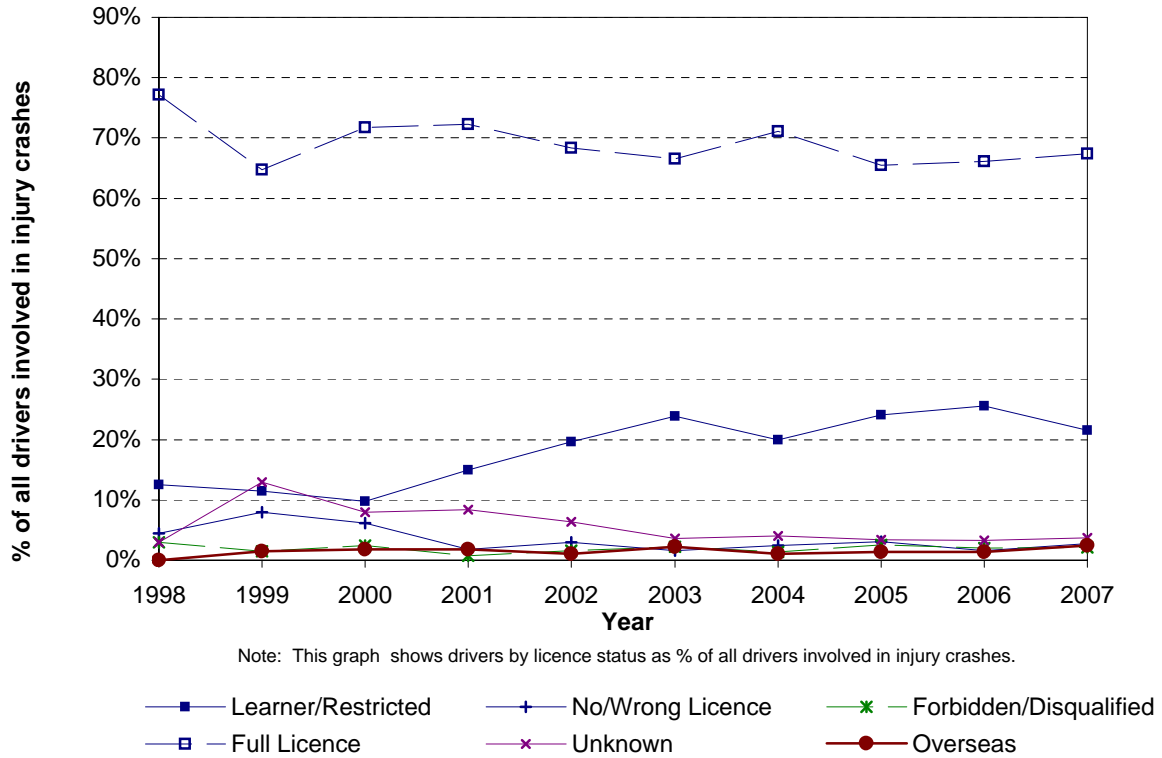
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.26 Casualty ethnicity - rural
Southland Region (2003-2007)**

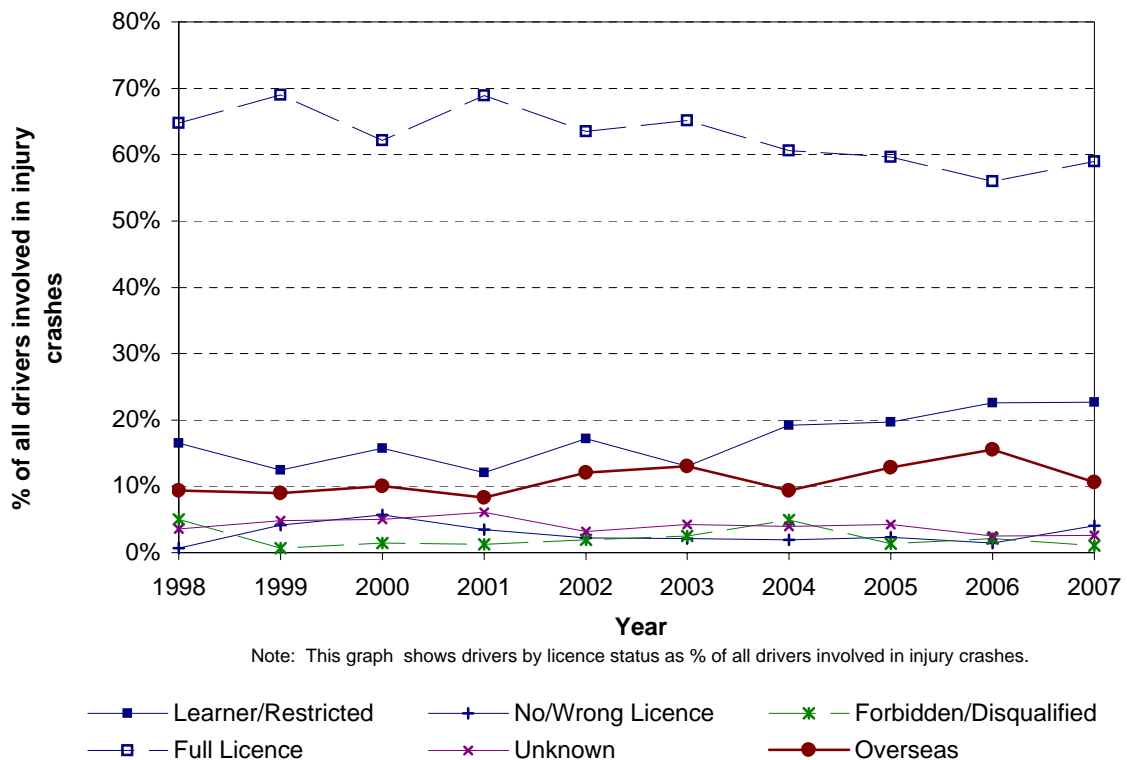


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.27 Licence status - urban
Southland Region**

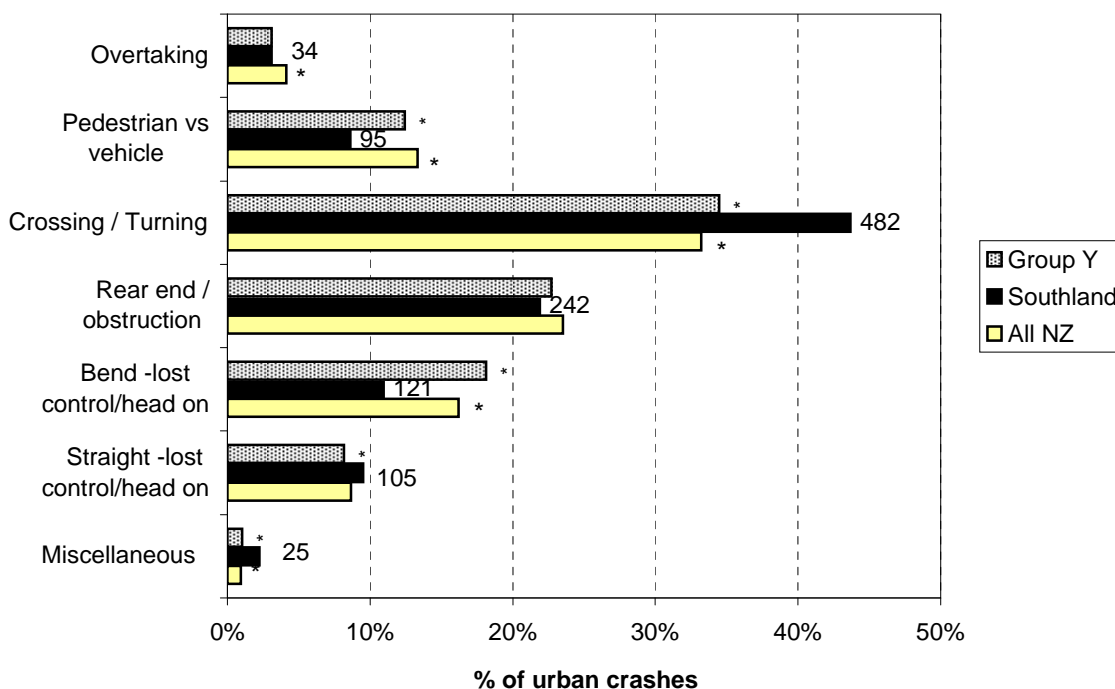


**Figure 3.28 Licence status - rural
Southland Region**



Crash type statistics

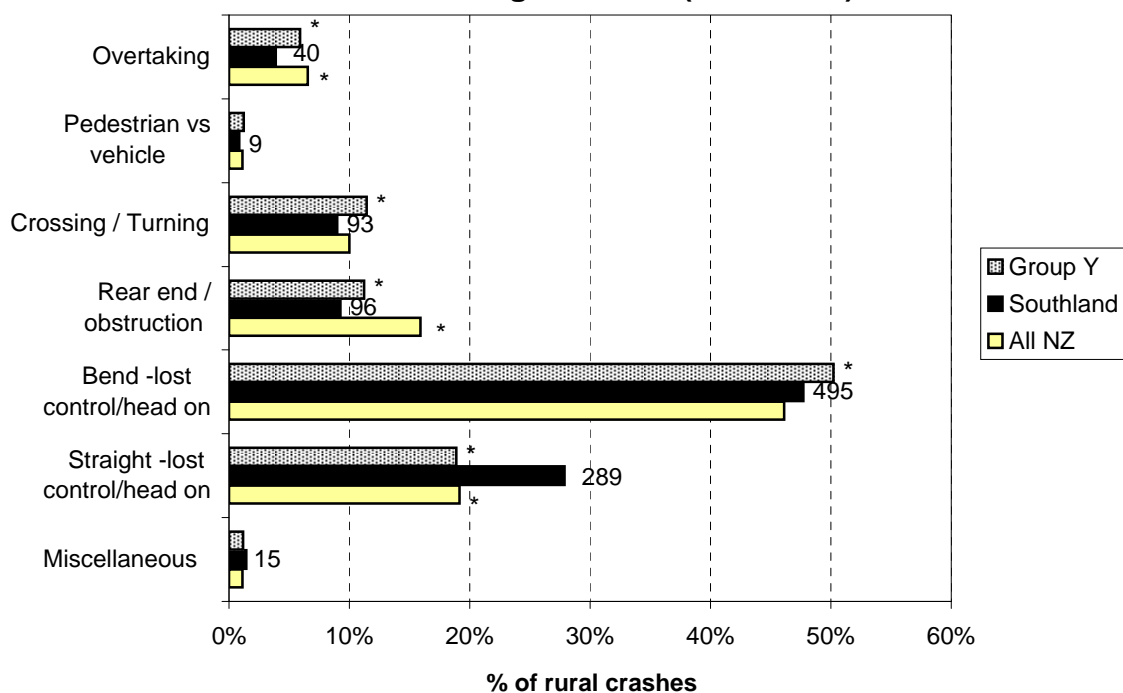
**Figure 4.1 Crash movement type - urban
Southland Region (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.

*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

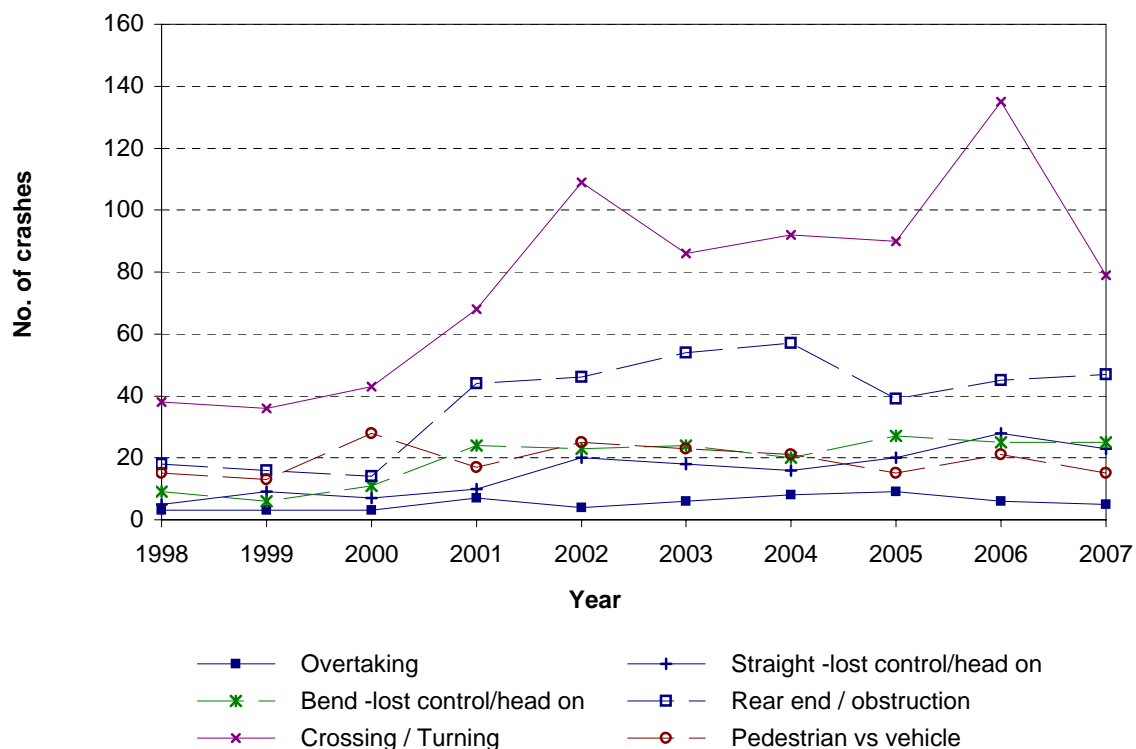
**Figure 4.2 Crash movement type - rural
Southland Region roads (2003-2007)**



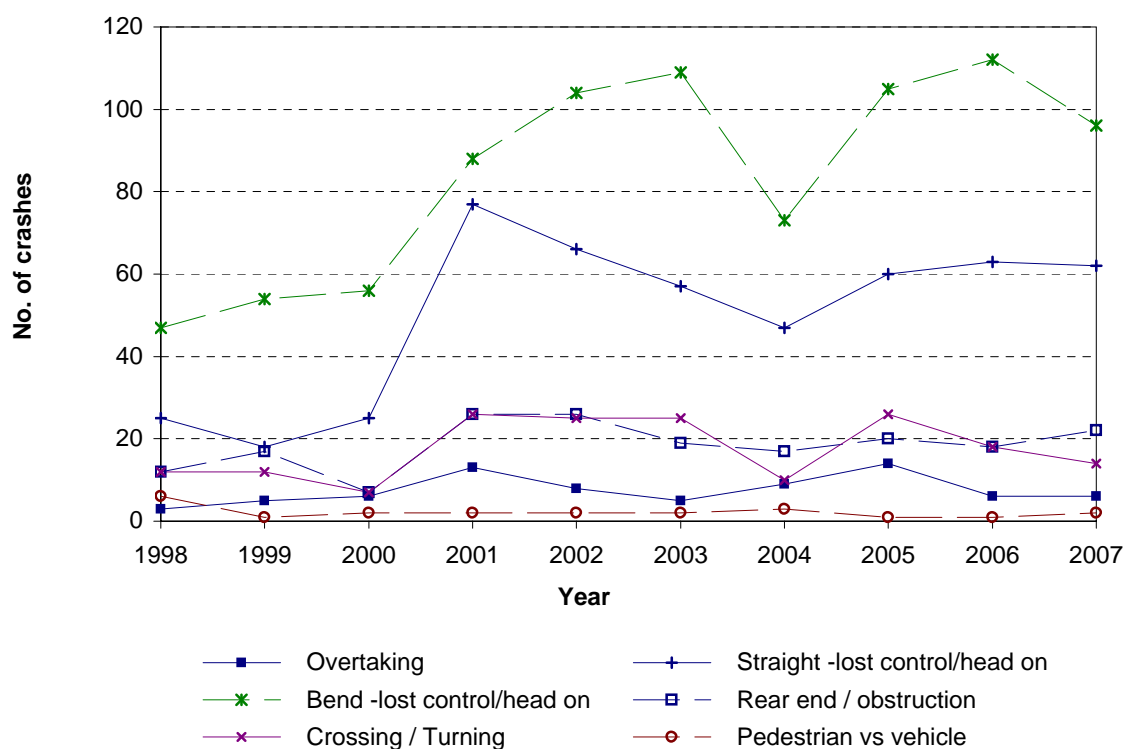
Note: While the graph plots percentages, the number of crashes is shown against the data points.

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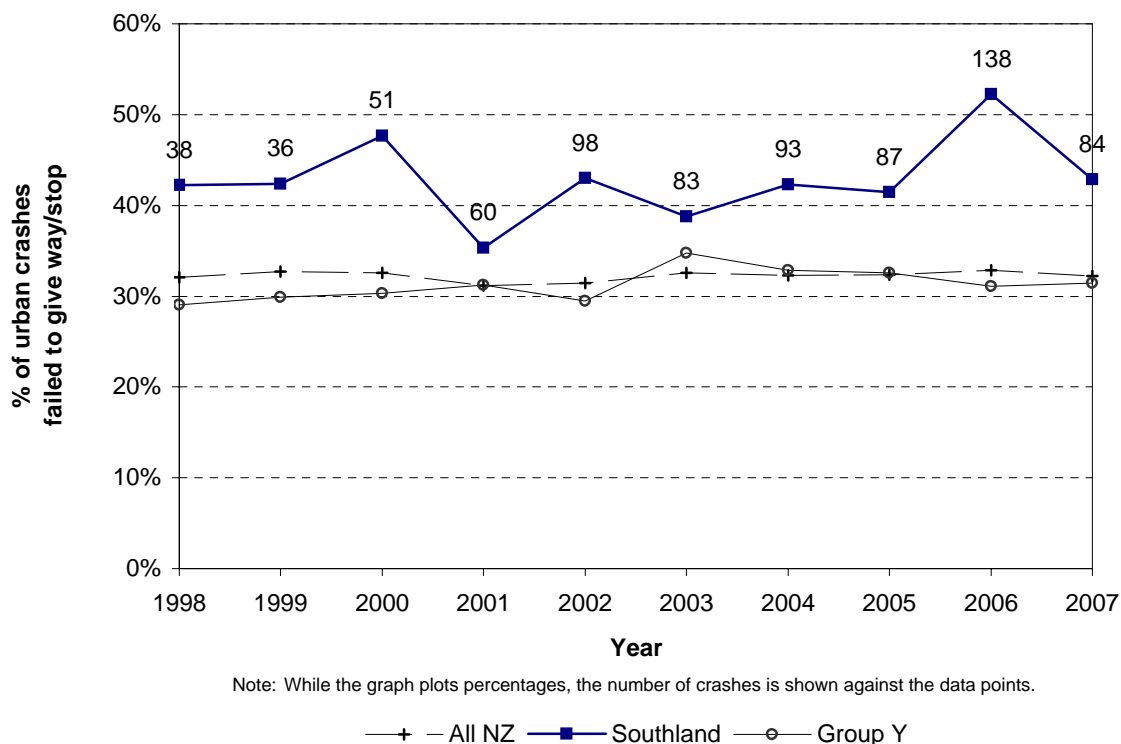
**Figure 4.3 Crash movement type - trends
Southland Region - urban roads**



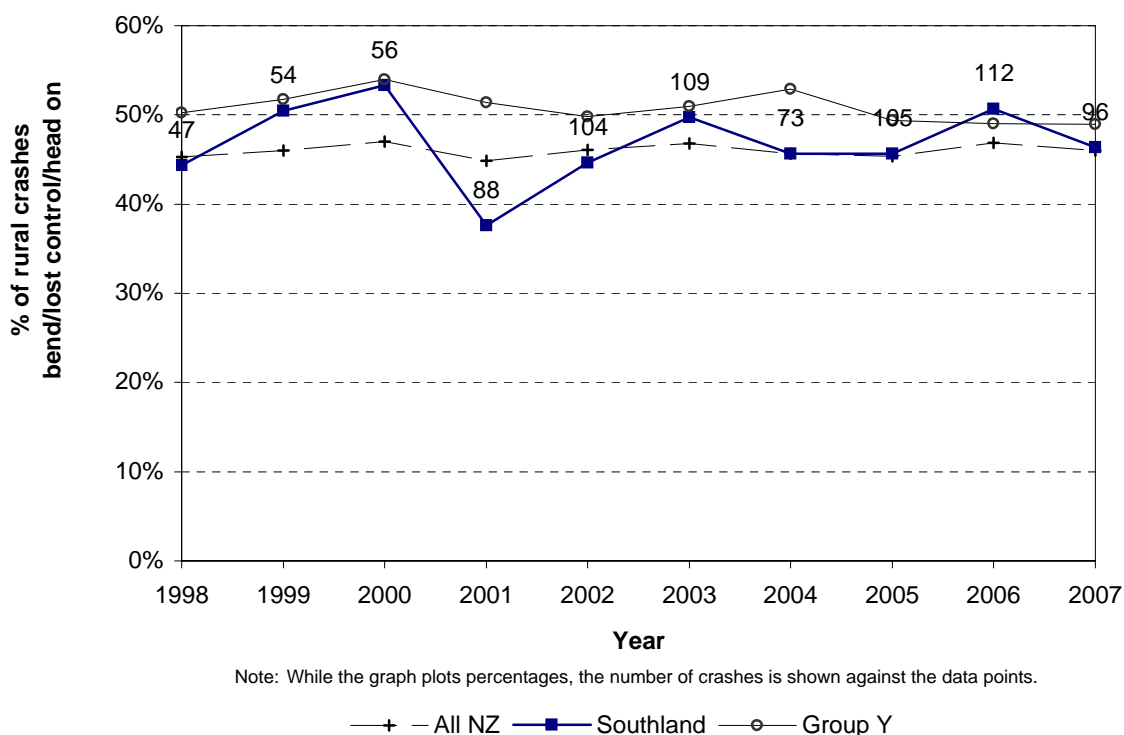
**Figure 4.4 Crash movement type - trends
Southland Region - rural roads**



**Figure 4.5 Failed to give way / stop
Southland Region - urban roads**

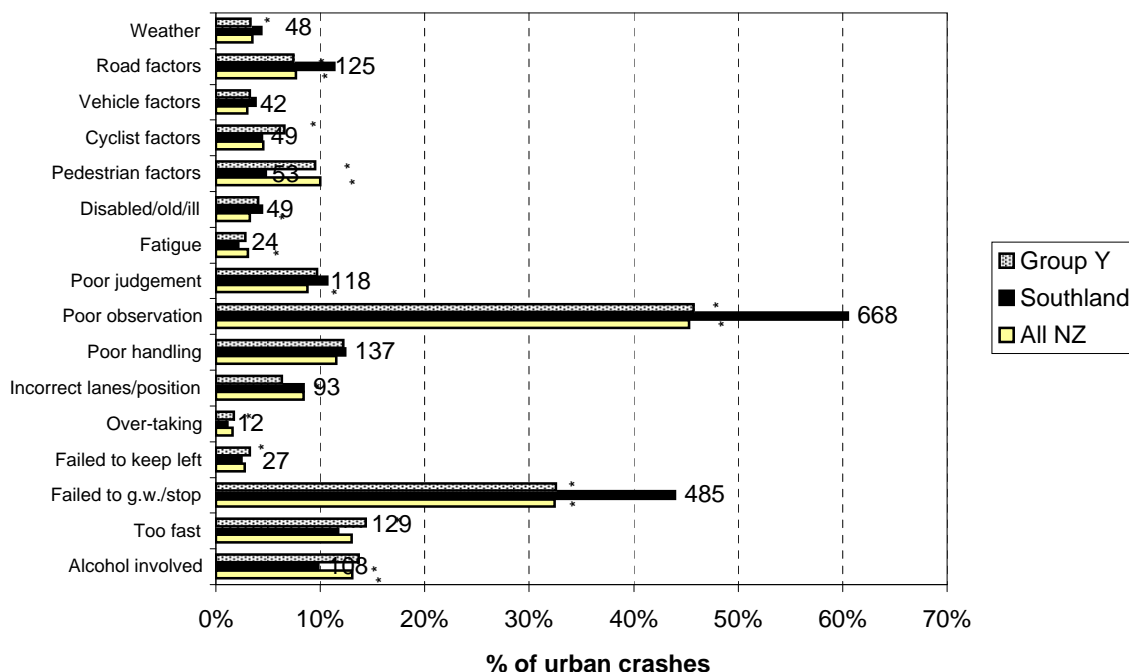


**Figure 4.6 Bend - lost control / head - on
Southland Region - rural roads**



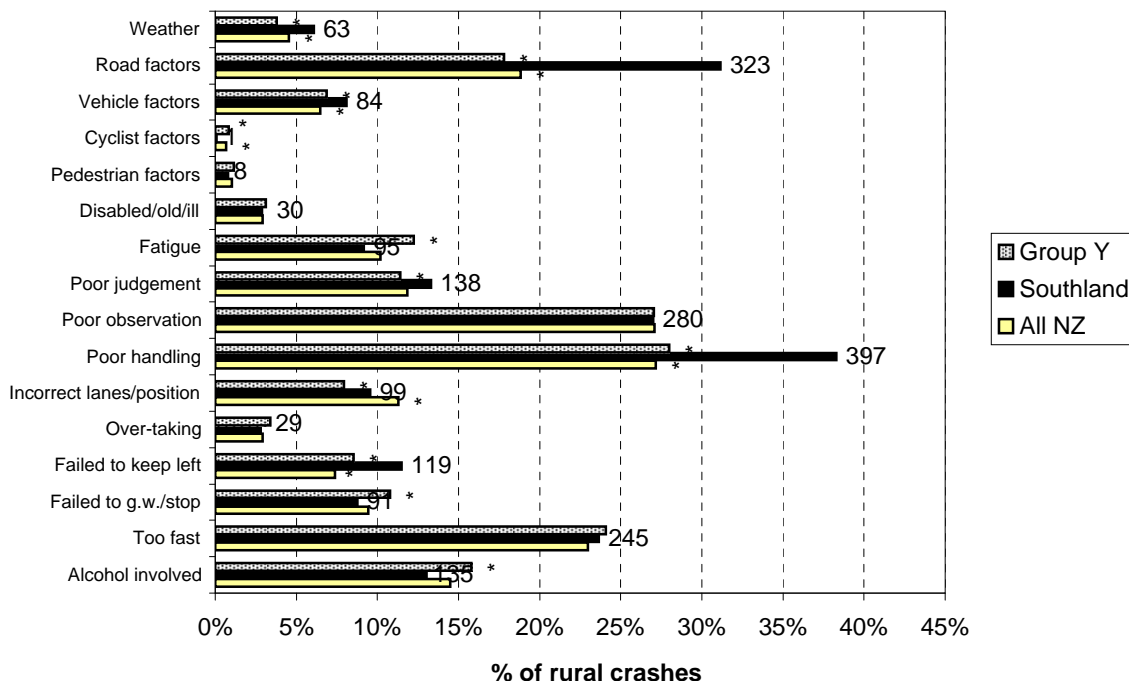
Crash factor statistics

**Figure 5.1 Contributing factors - urban
Southland Region (2003-2007)**



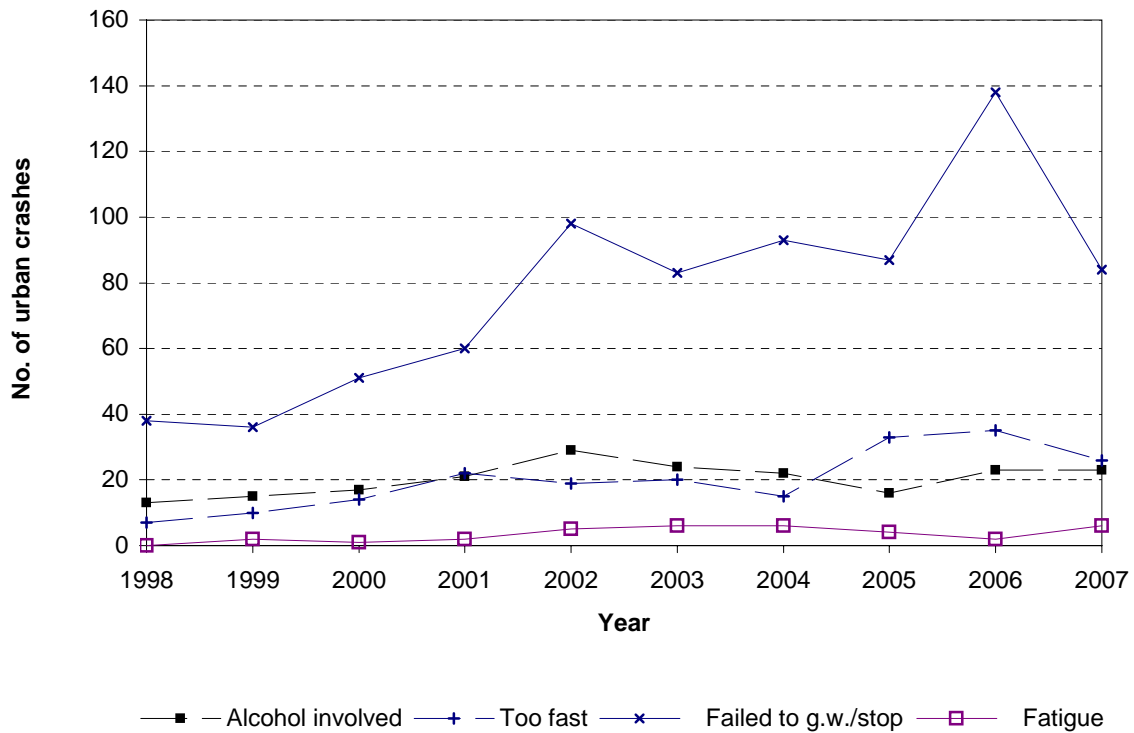
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 5.2 Contributing factors - rural
Southland Region (2003-2007)**

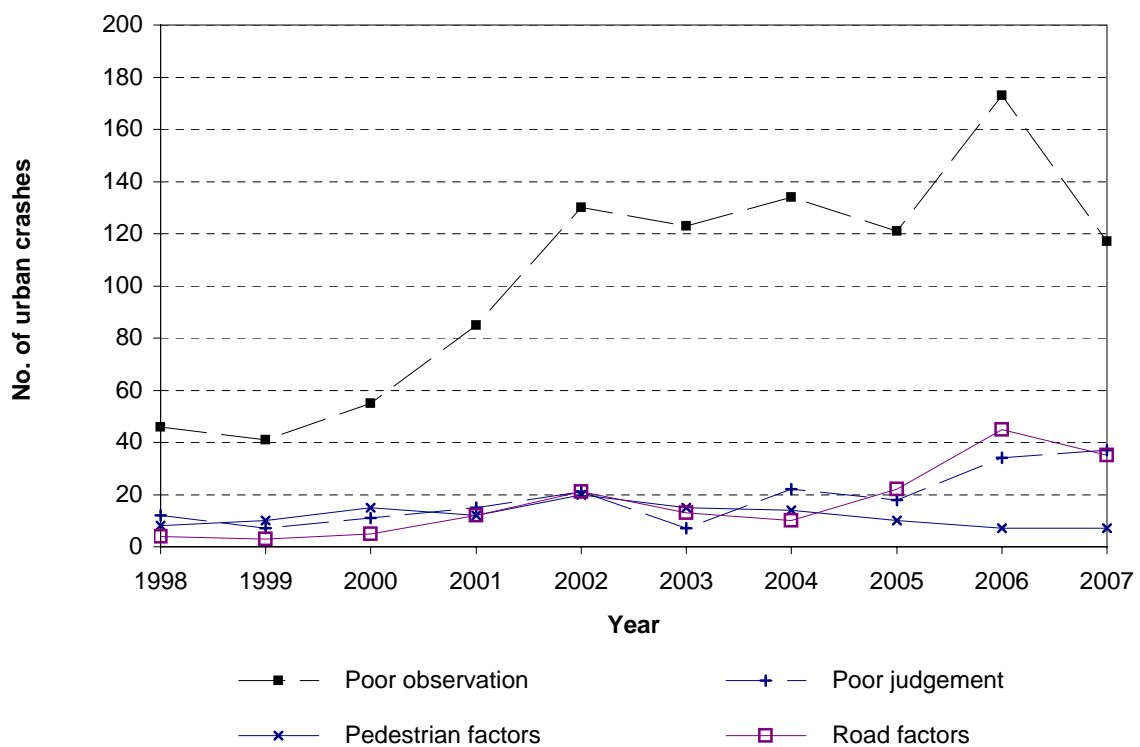


Note: While the graph plots percentages, the number of casualties is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

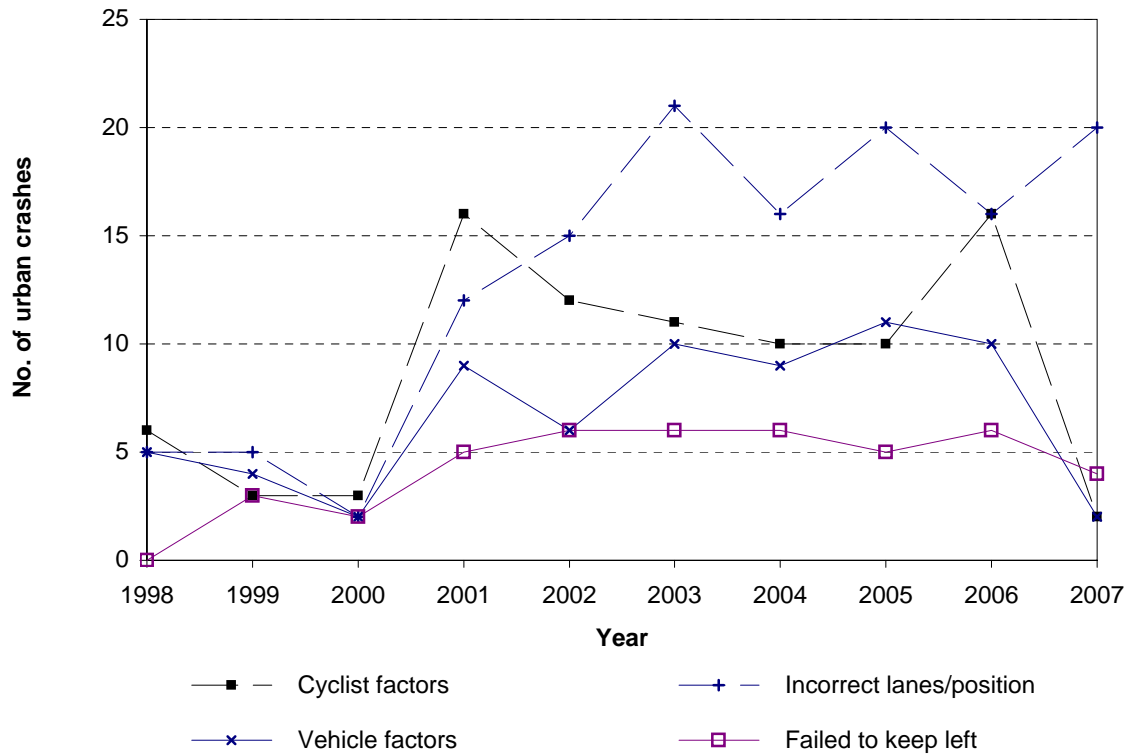
**Figure 5.3 Contributing factor trends
Southland Region - urban roads**



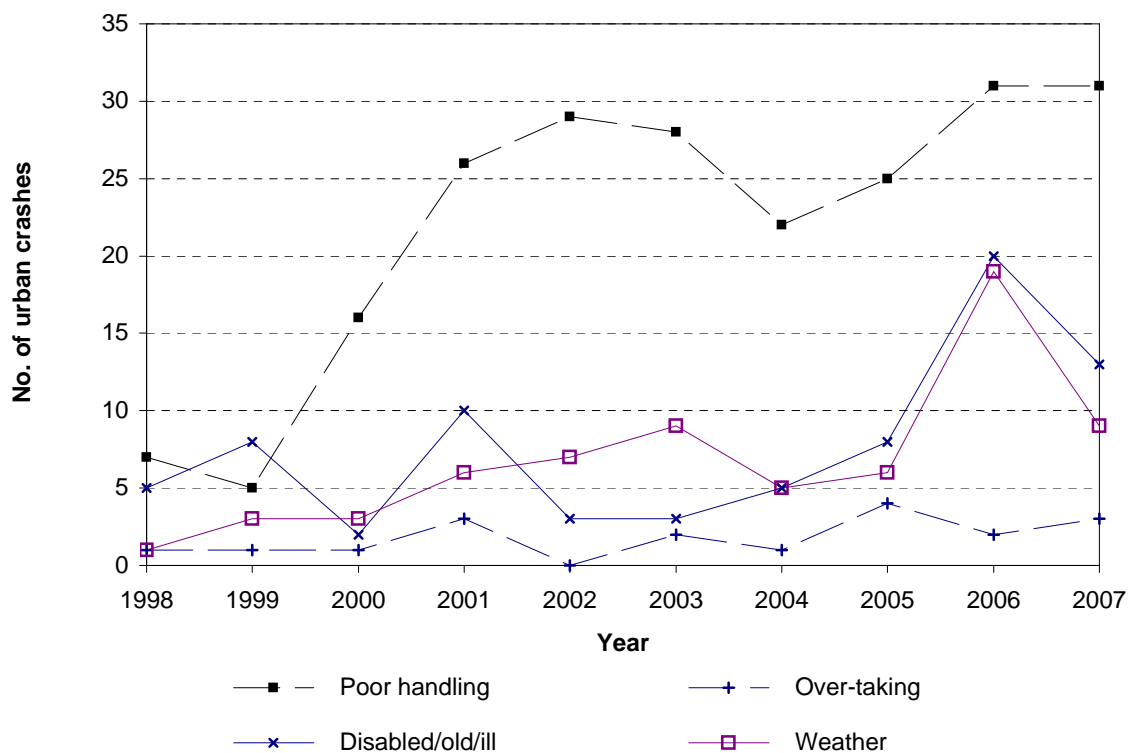
**Figure 5.4 Contributing factor trends
Southland Region - urban roads**



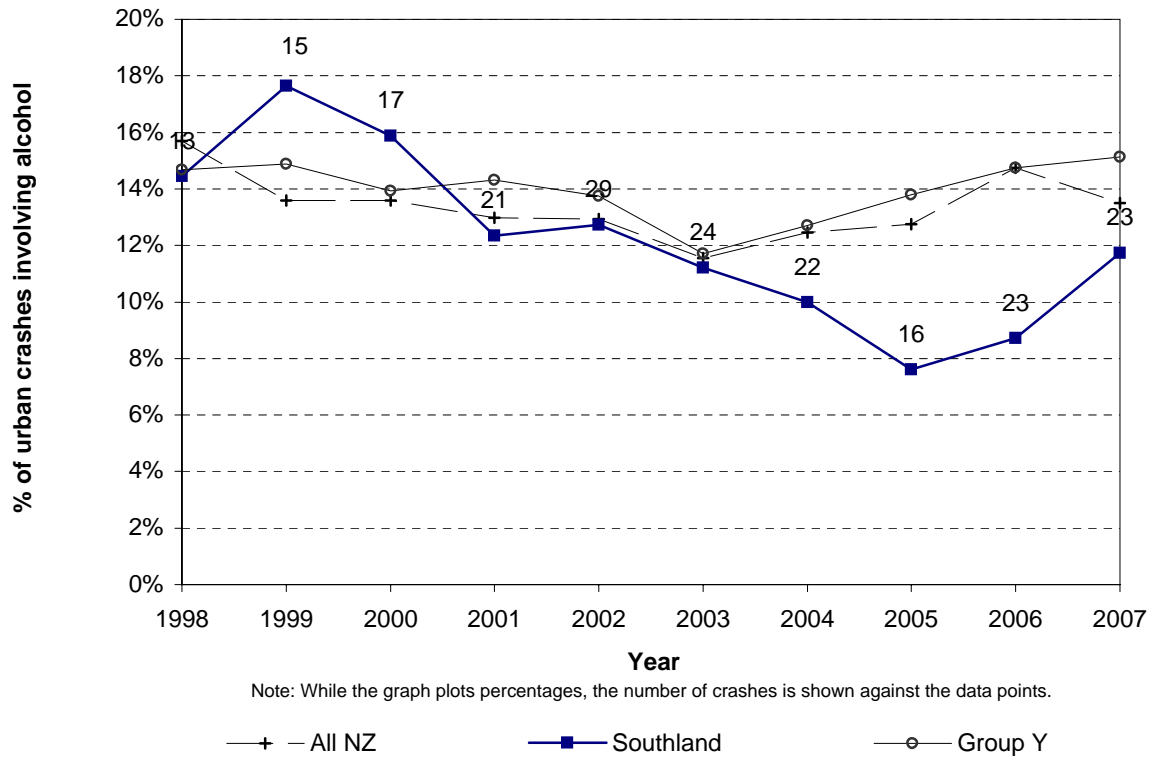
**Figure 5.5 Contributing factor trends
Southland Region - urban roads**



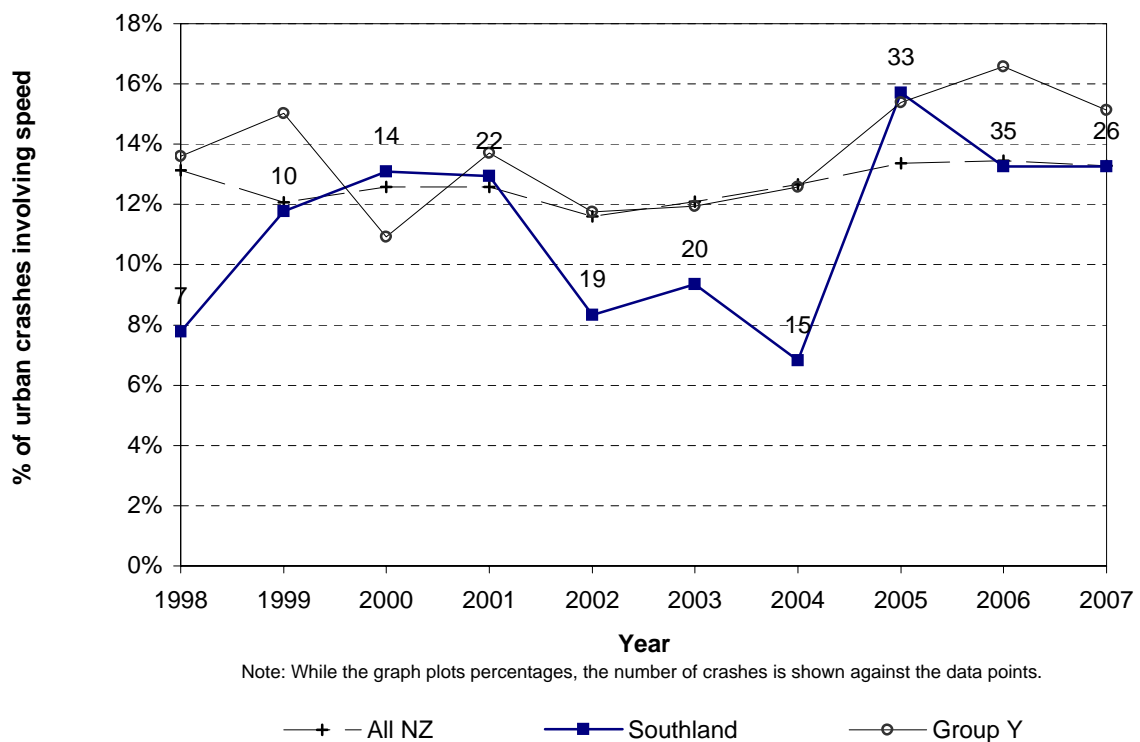
**Figure 5.6 Contributing factor trends
Southland Region - urban roads**



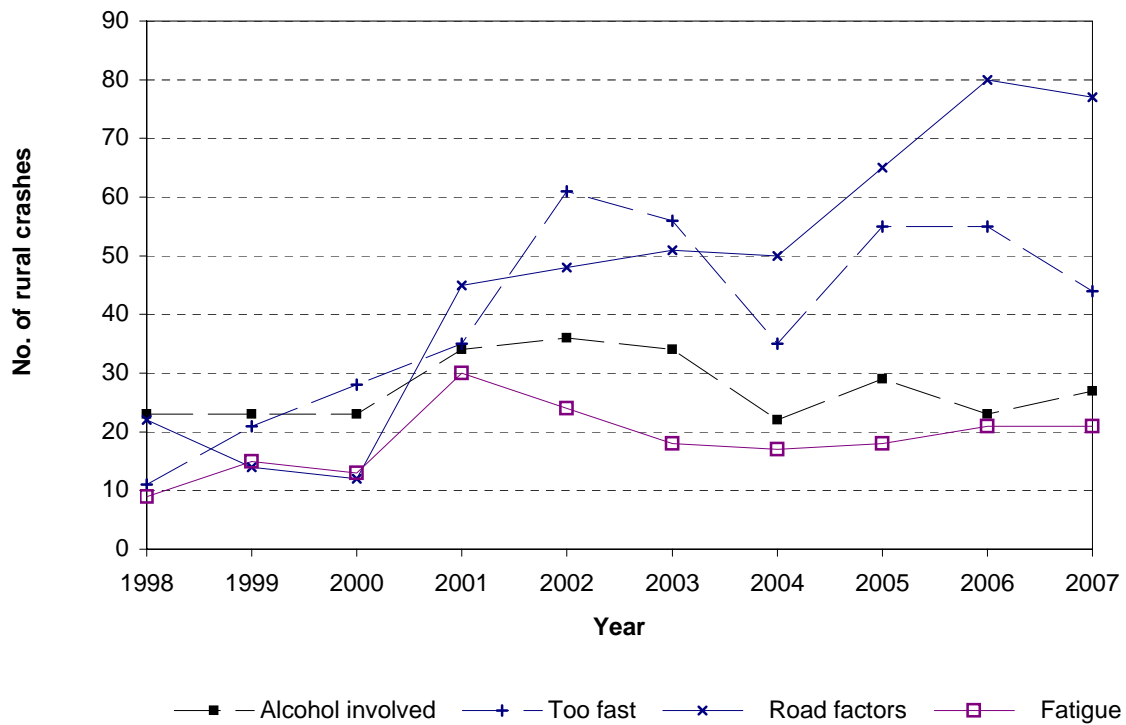
**Figure 5.7 Alcohol involved trend
Southland Region - urban roads**



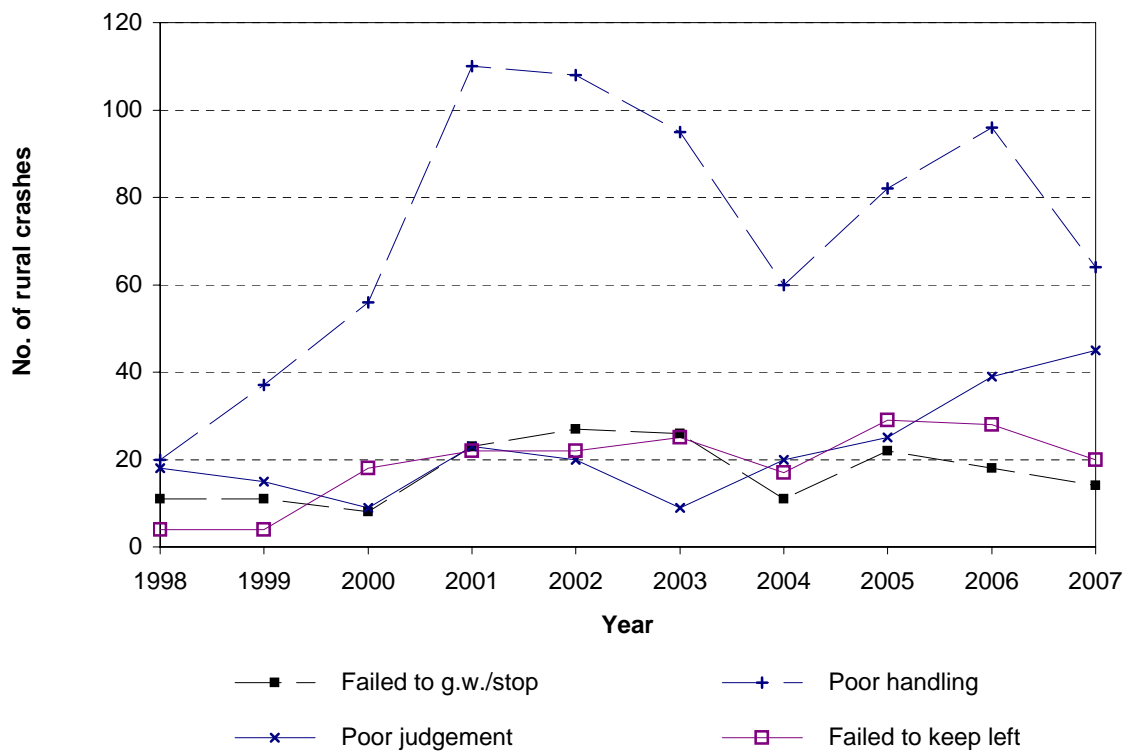
**Figure 5.8 Speed involved trend
Southland Region - urban roads**



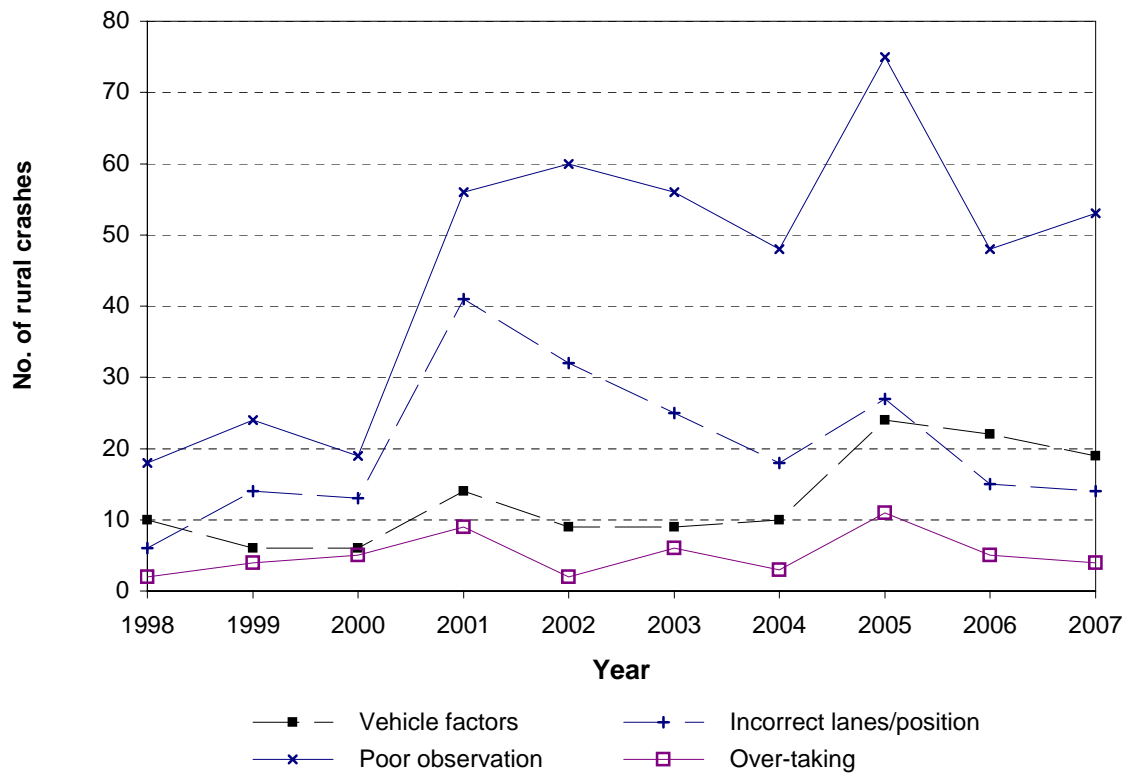
**Figure 5.9 Contributing factor trends
Southland Region - rural roads**



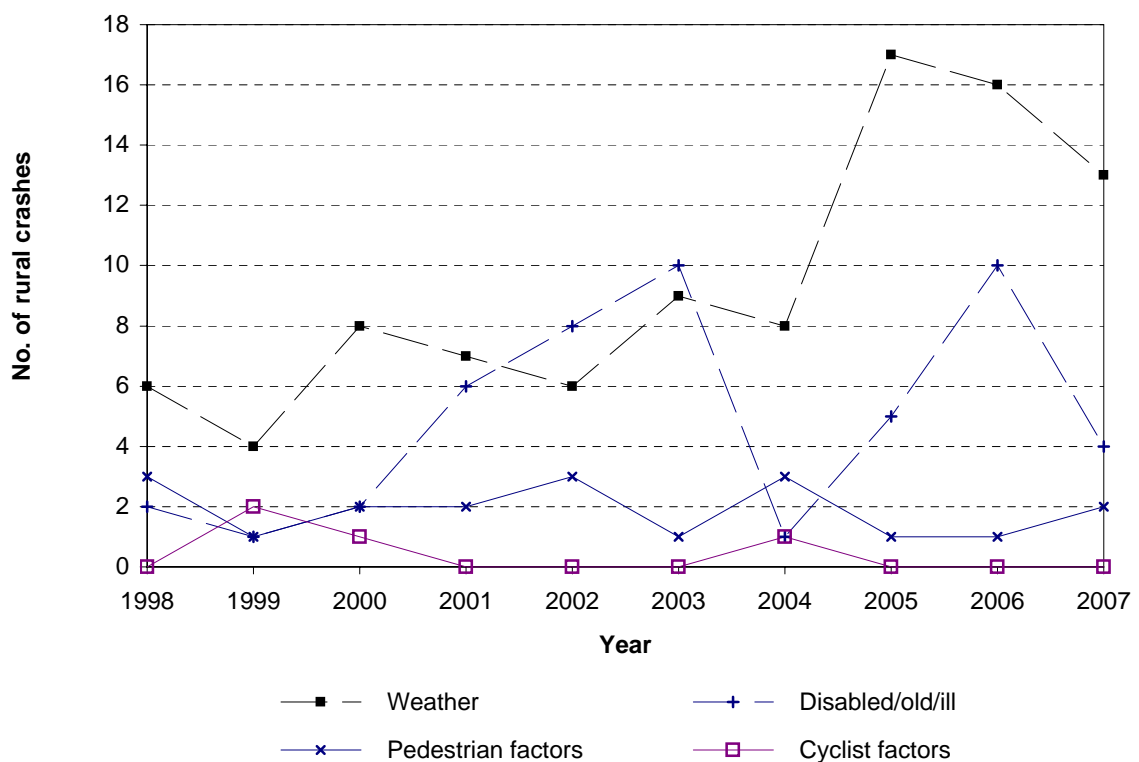
**Figure 5.10 Contributing factor trends
Southland Region - rural roads**



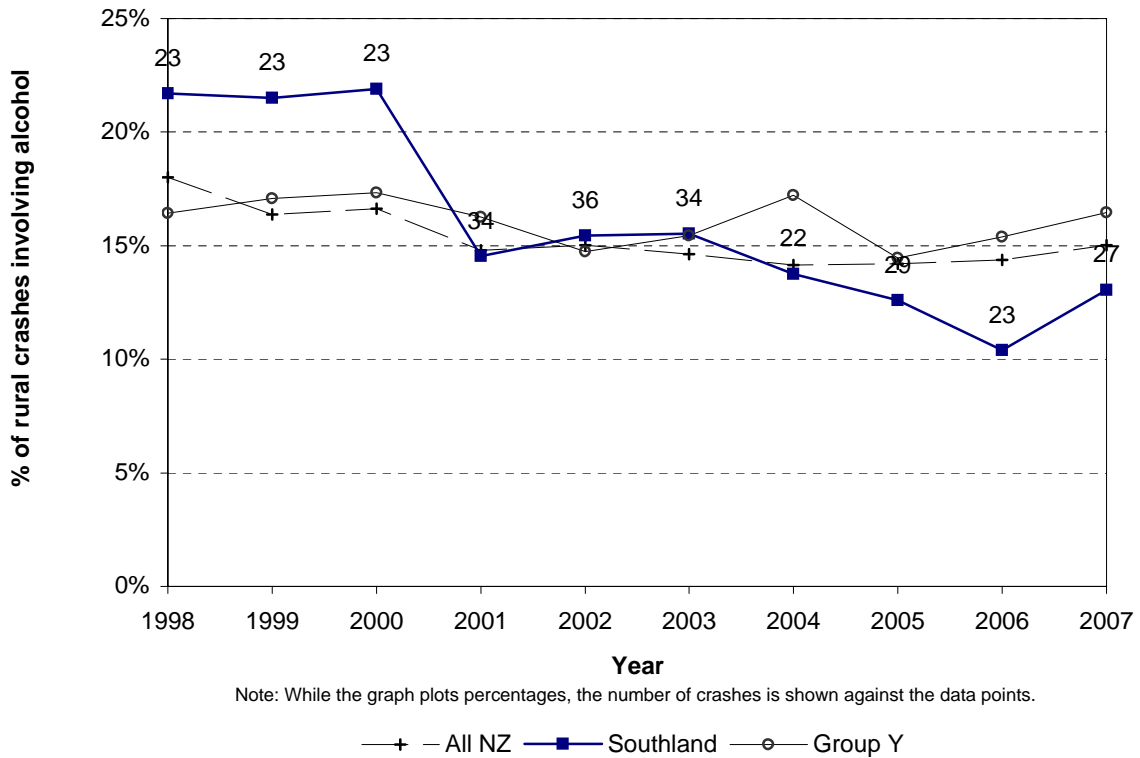
**Figure 5.11 Contributing factor trends
Southland Region - rural roads**



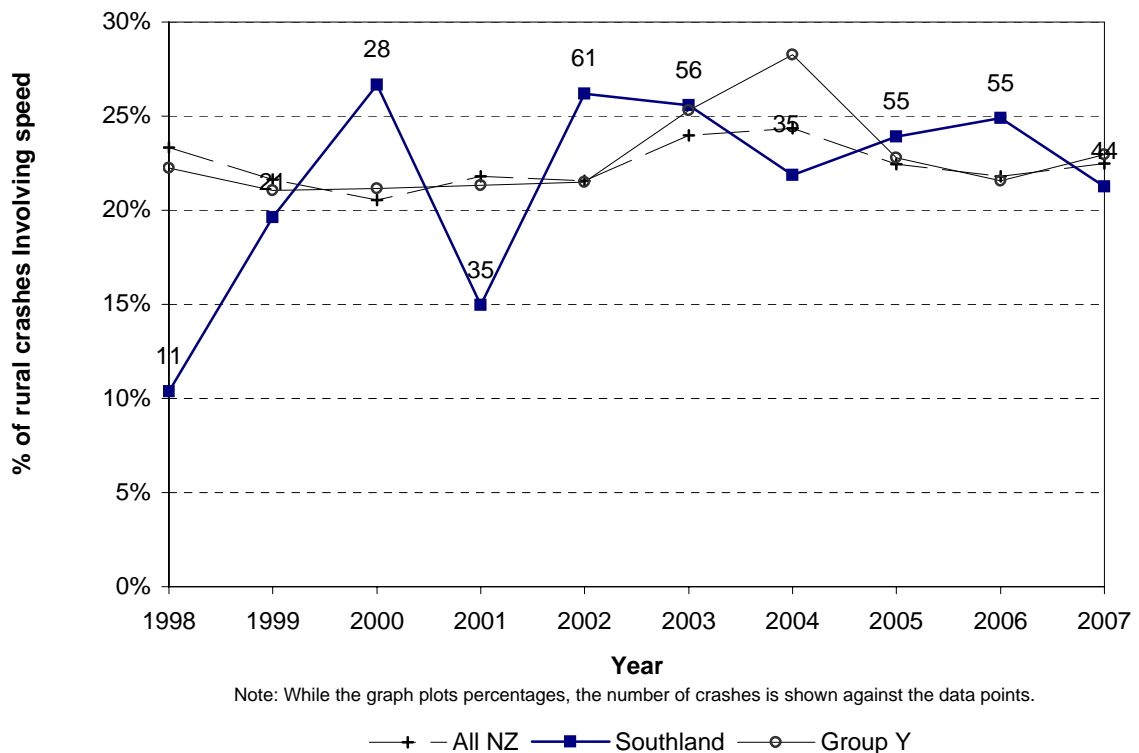
**Figure 5.12 Contributing factor trends
Southland Region - rural roads**



**Figure 5.13 Alcohol involved trend
Southland Region - rural roads**

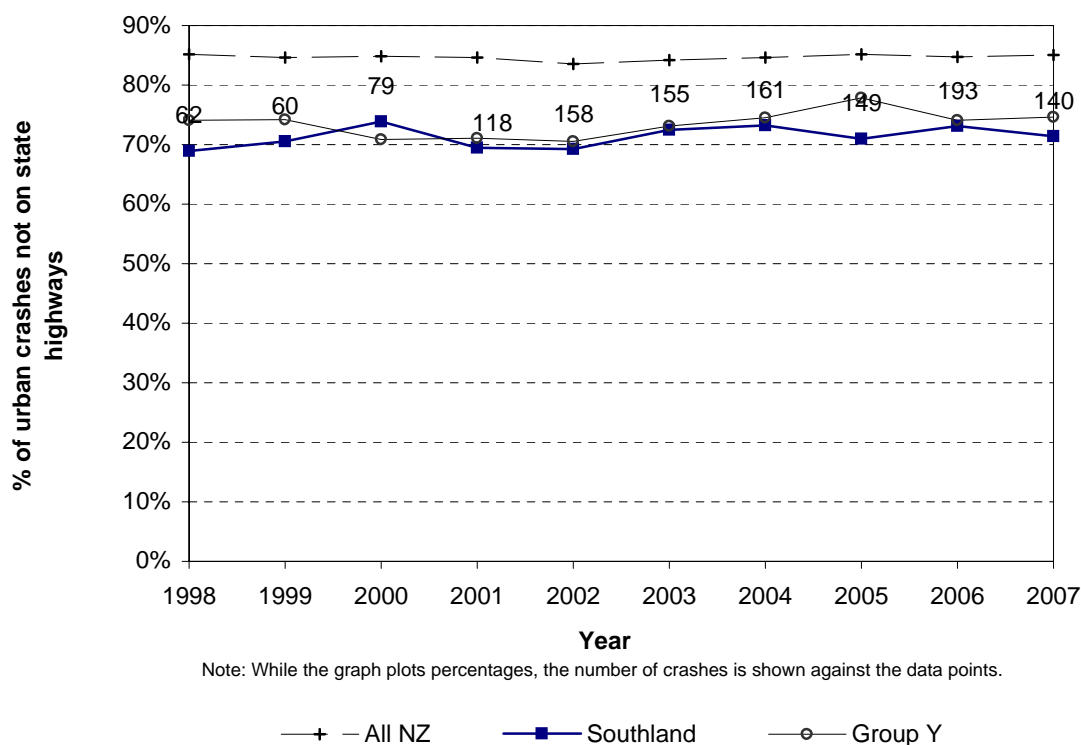


**Figure 5.14 Speed involved trend
Southland Region - rural roads**

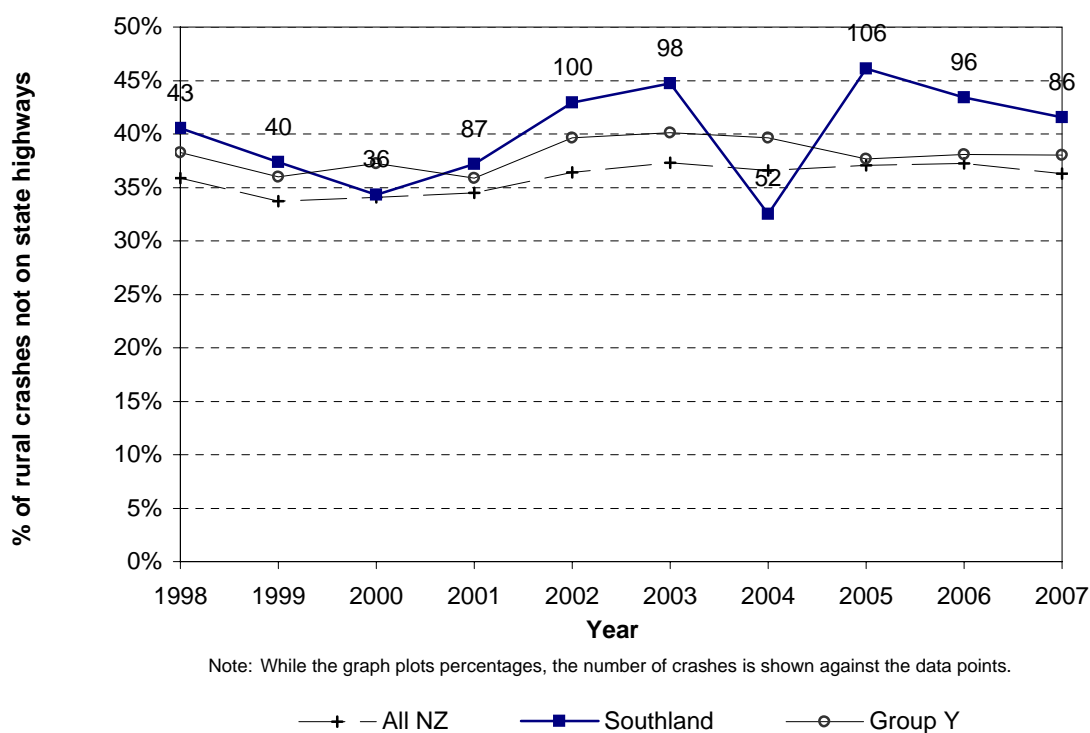


Environmental statistics

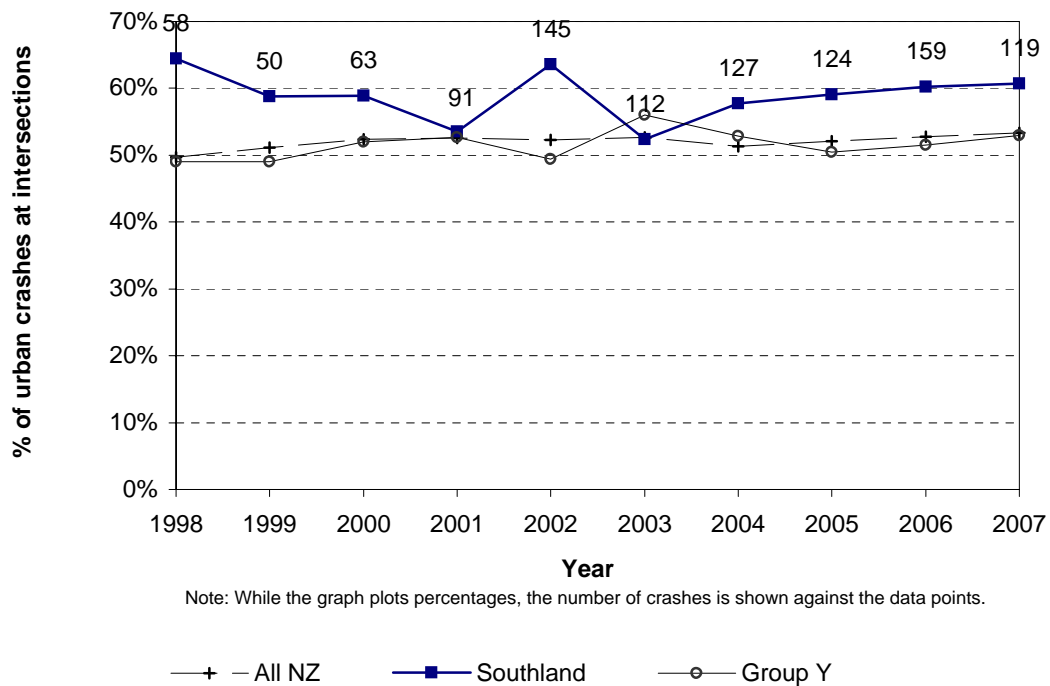
**Figure 6.1 Crashes not on state highways
Southland Region - urban roads**



**Figure 6.2 Crashes not on state highways
Southland Region - rural roads**



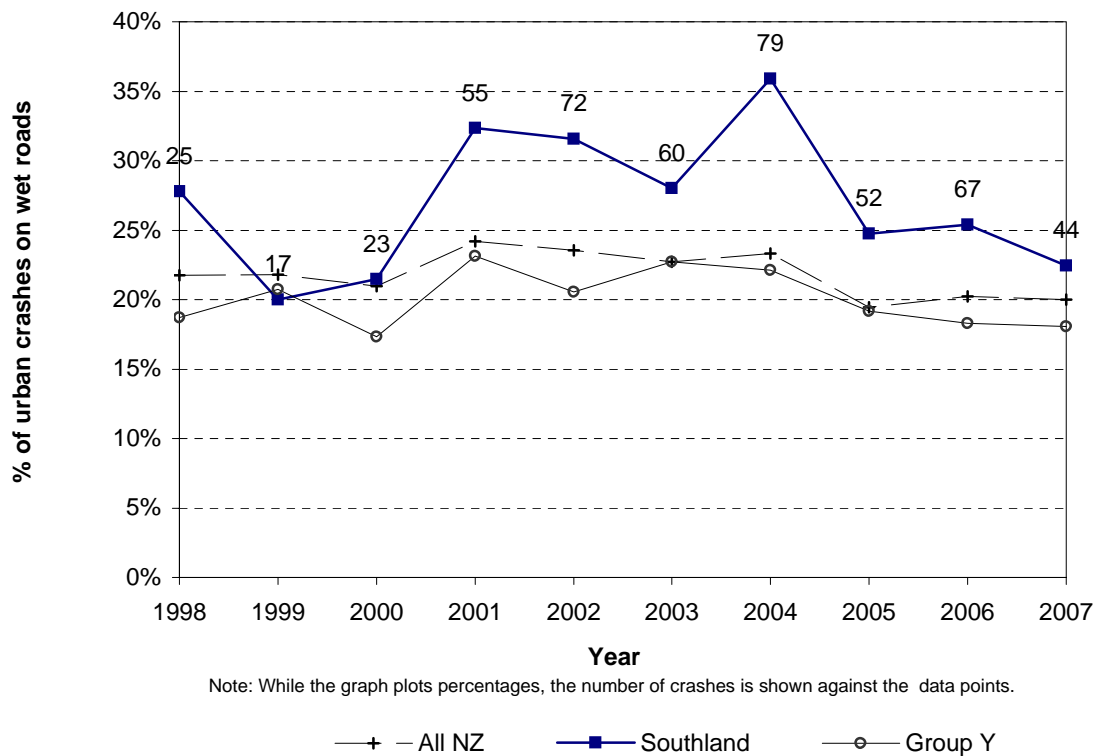
**Figure 6.3 Intersection crashes
Southland Region - urban roads**



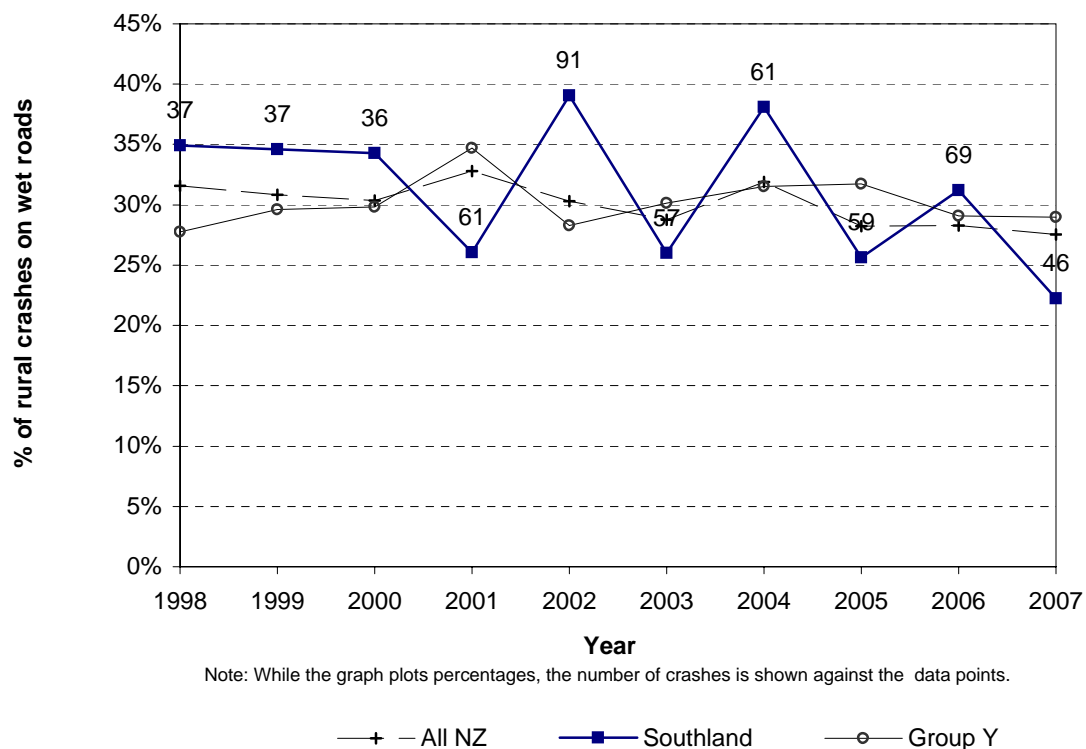
**Figure 6.4 Intersection crashes
Southland Region - rural roads**



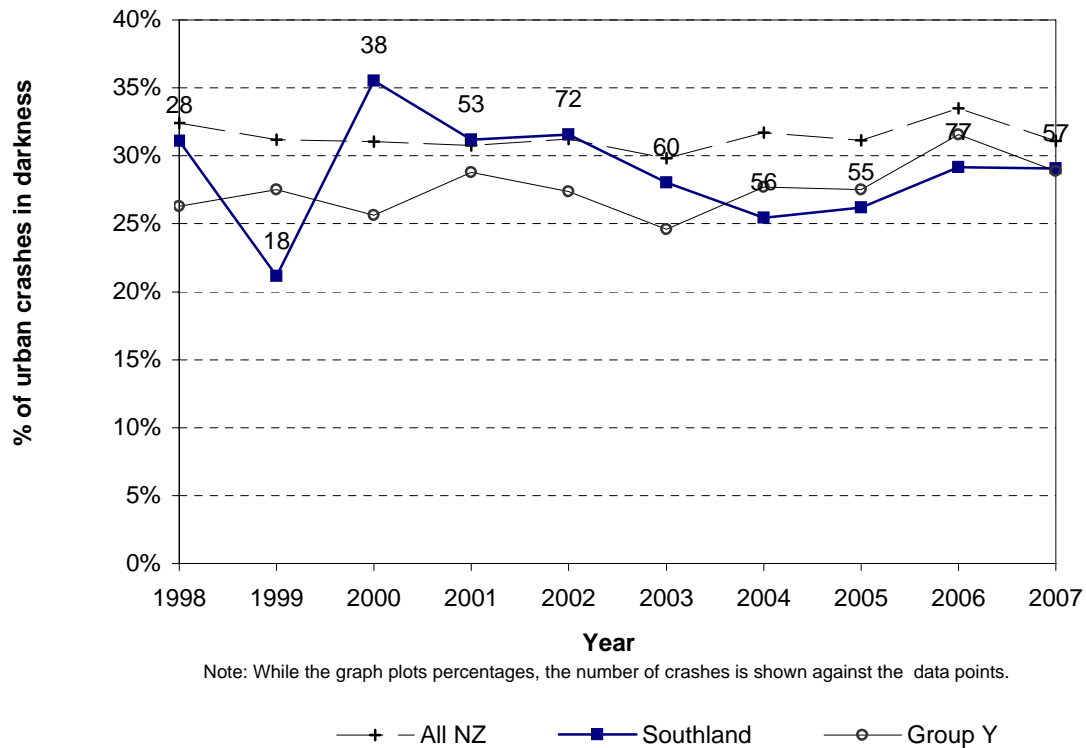
**Figure 6.5 Wet road crashes
Southland Region - urban roads**



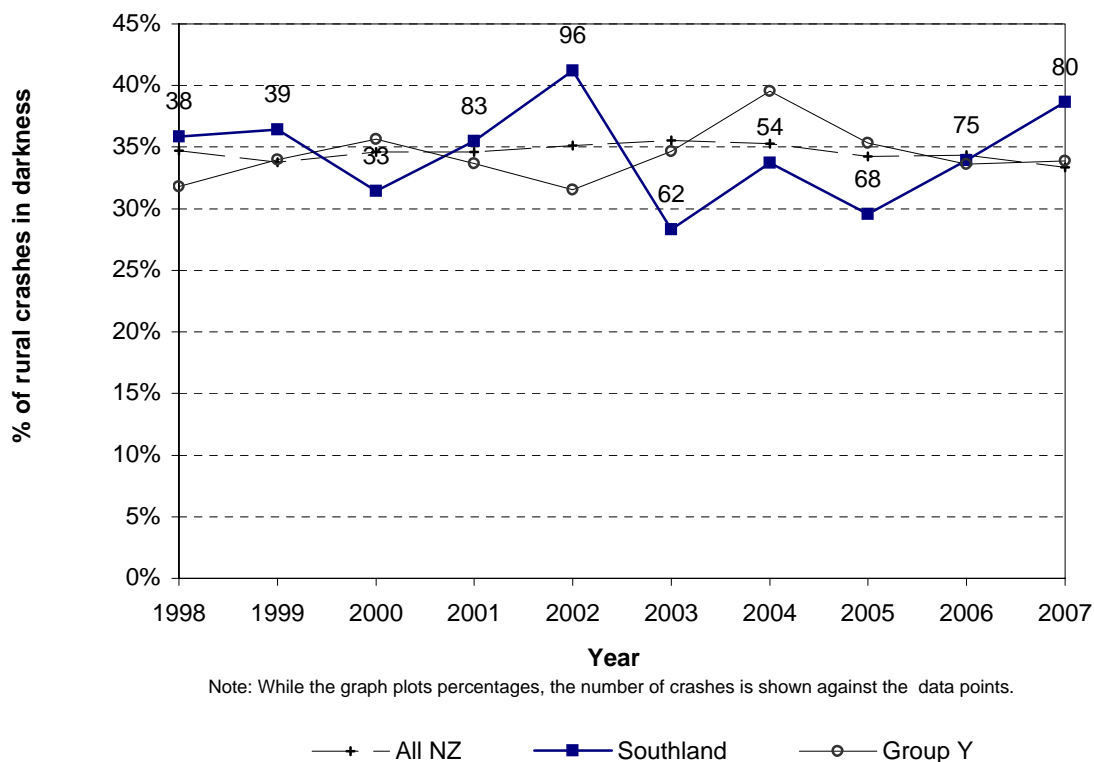
**Figure 6.6 Wet road crashes
Southland Region - rural roads**



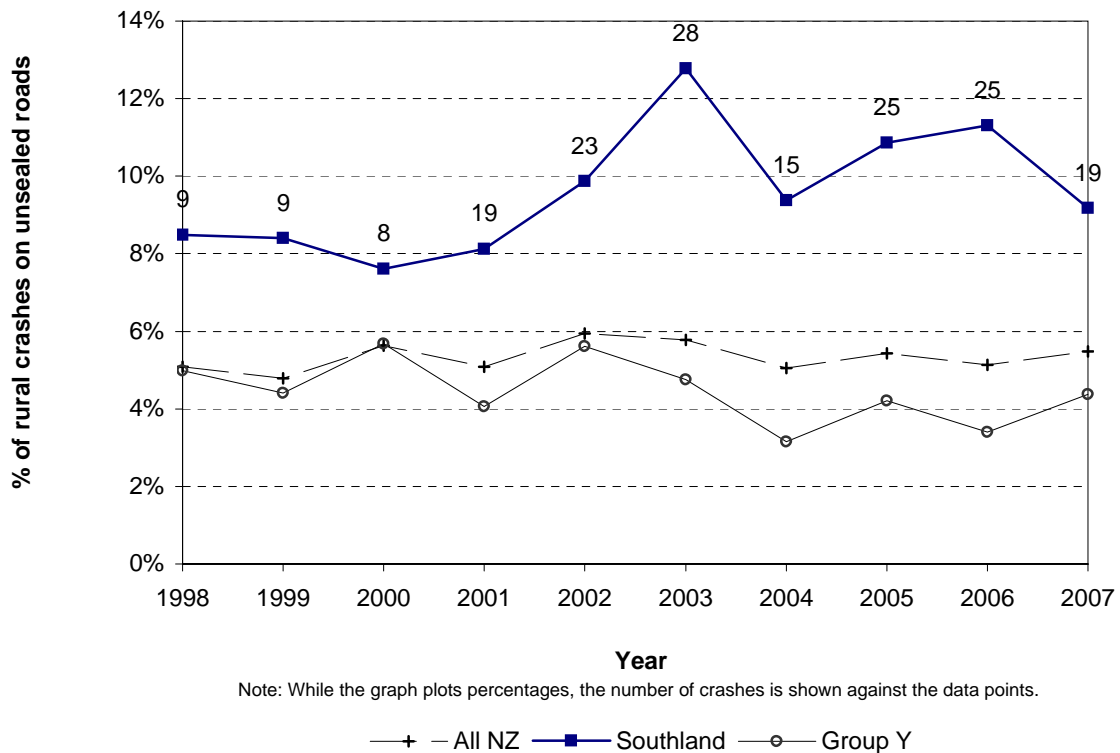
**Figure 6.7 Crashes in darkness
Southland Region - urban roads**



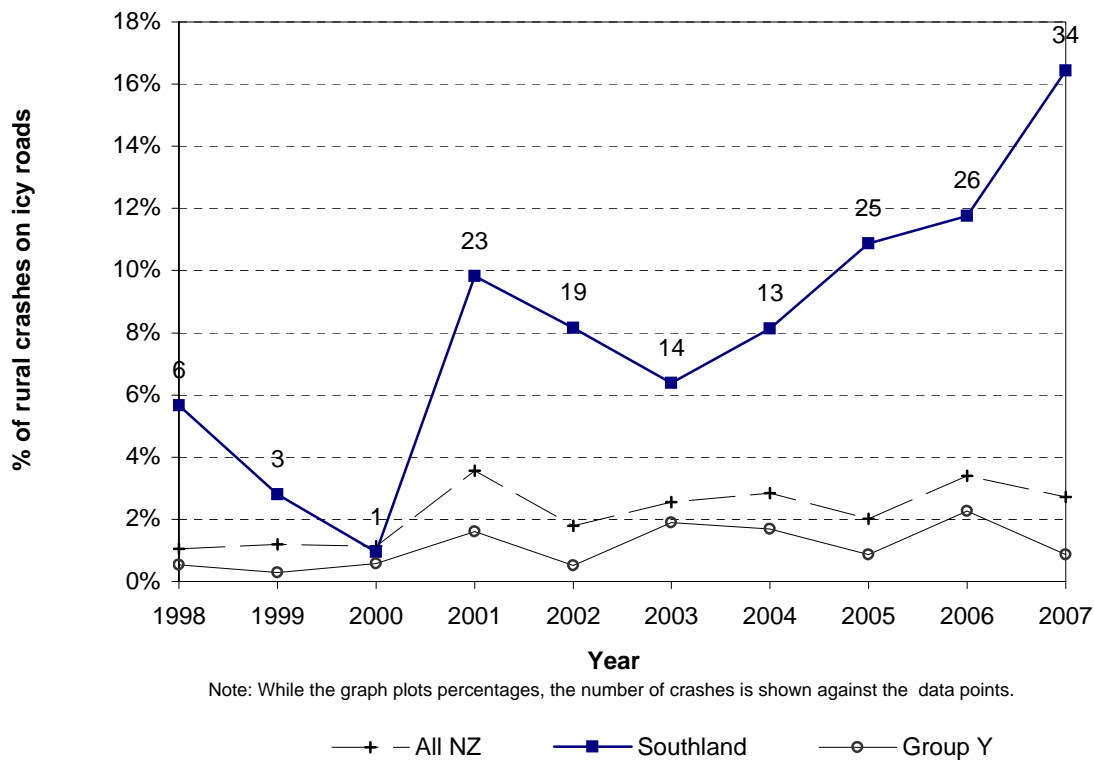
**Figure 6.8 Crashes in darkness
Southland Region - rural roads**



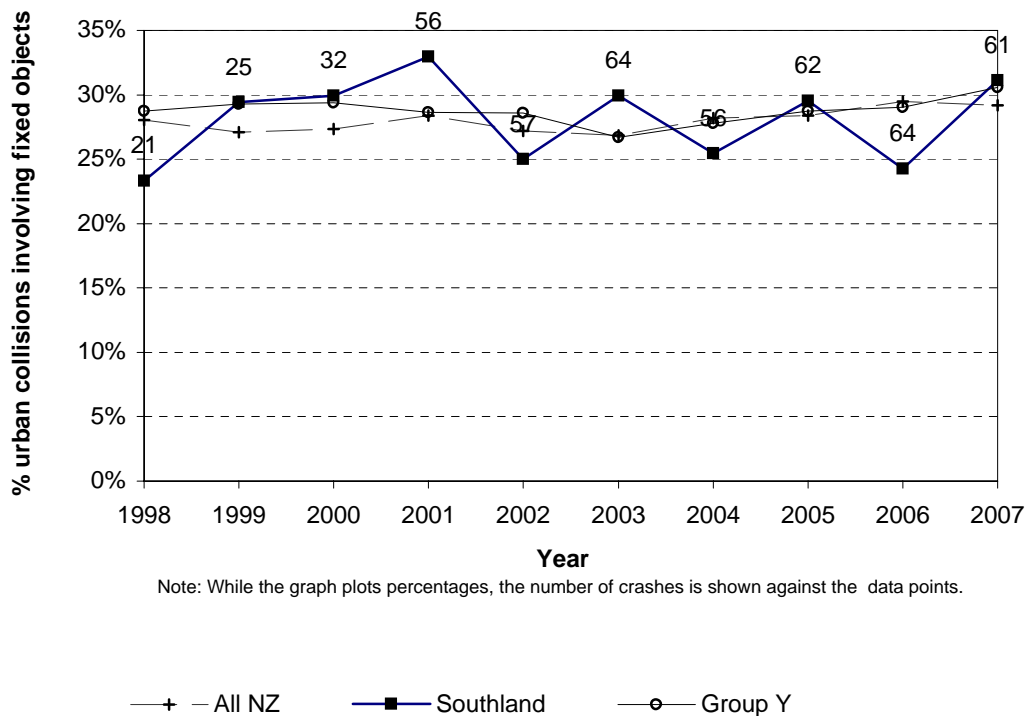
**Figure 6.9 Unsealed road crashes
Southland Region - rural roads**



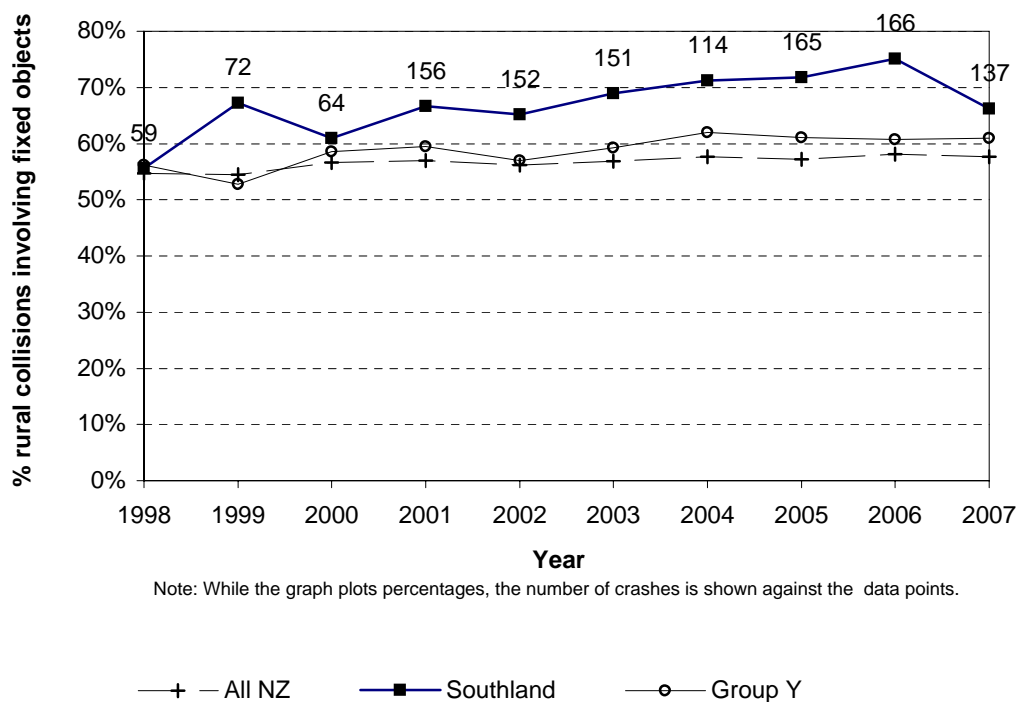
**Figure 6.10 Icy road crashes
Southland Region - rural roads**



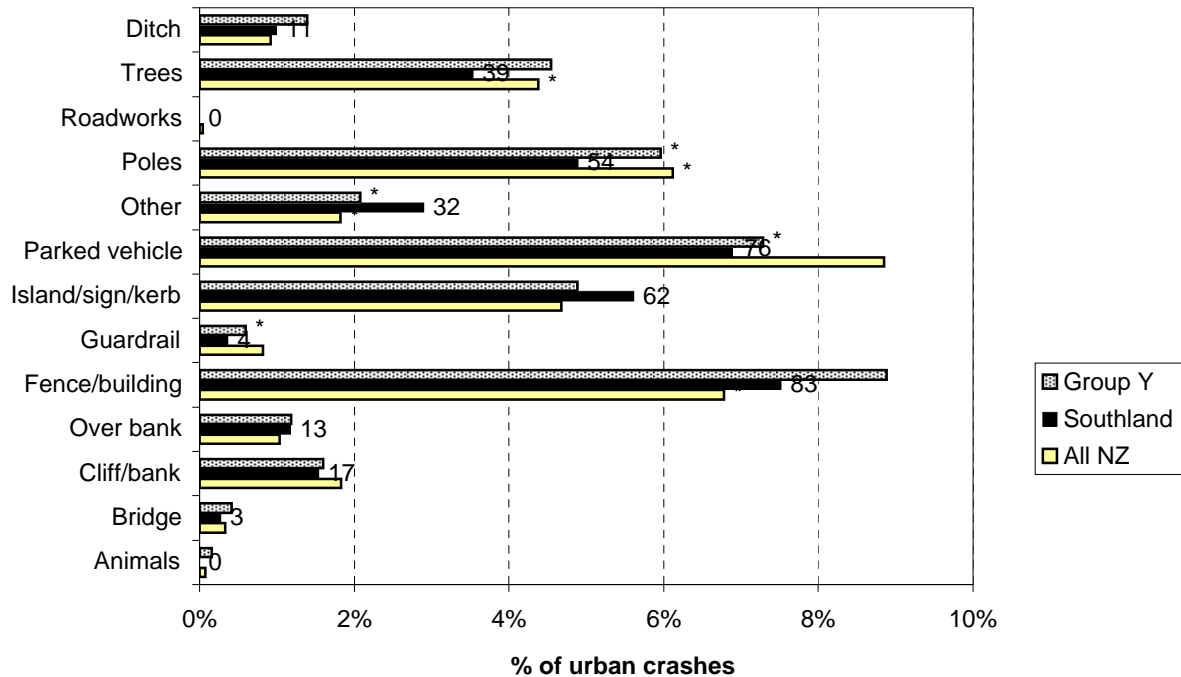
**Figure 6.11 Collisions with objects
Southland Region - urban roads**



**Figure 6.12 Collisions with objects
Southland Region - rural roads**

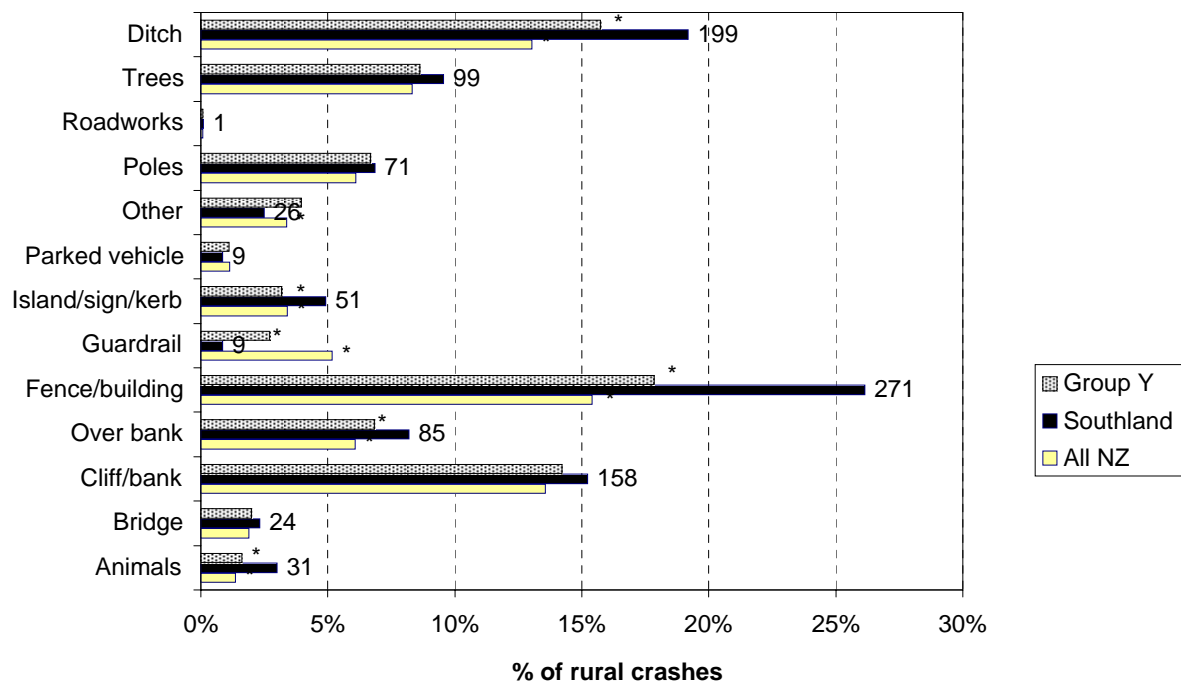


**Figure 6.13 Objects struck - urban
Southland Region (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

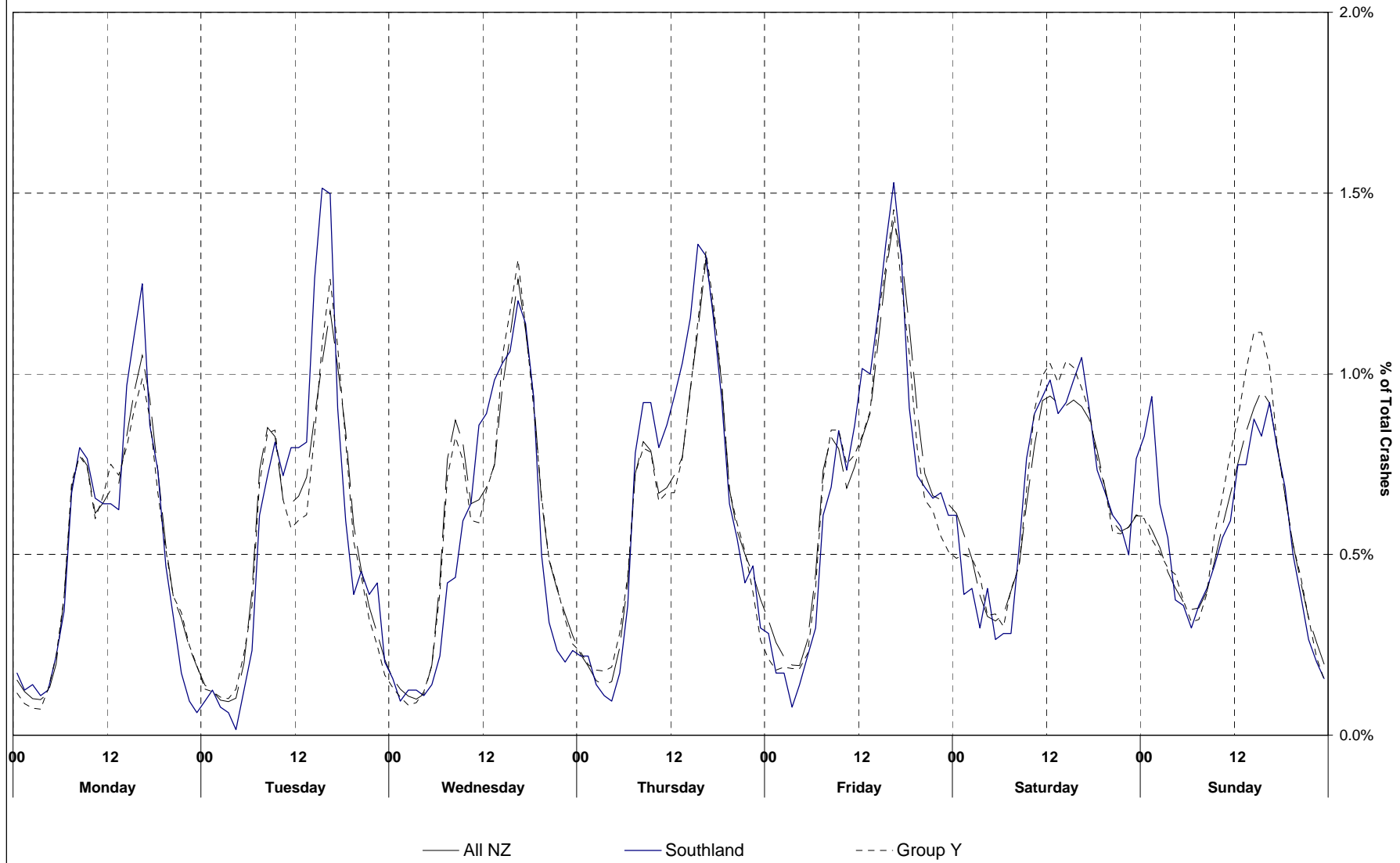
**Figure 6.14 Objects struck - rural
Southland Region (2003-2007)**



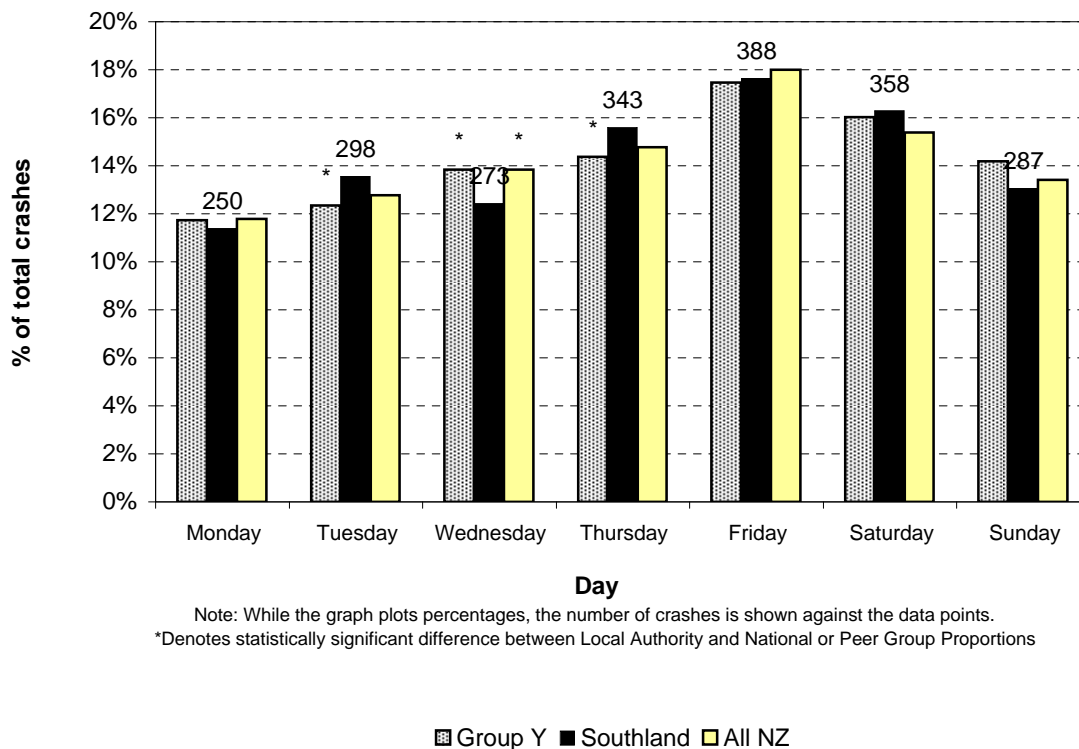
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

Date and time statistics

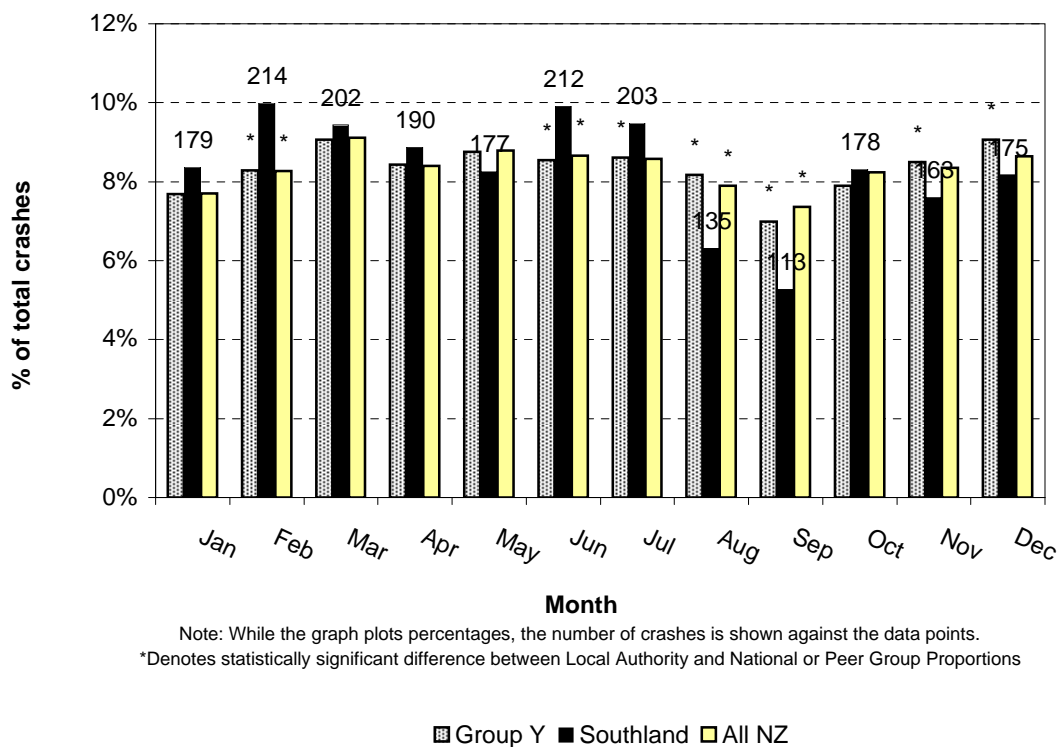
**Figure 7.1 Time pattern over average week
Southland Region (2003-2007)**



**Figure 7.2 Day of week (6 a.m. to 6 a.m.)
Southland Region (2003-2007)**



**Figure 7.3 Month of year
Southland Region (2003-2007)**



Local road statistics

Figure 8.1 Number of injury crashes
Southland Region - local roads (urban & rural)

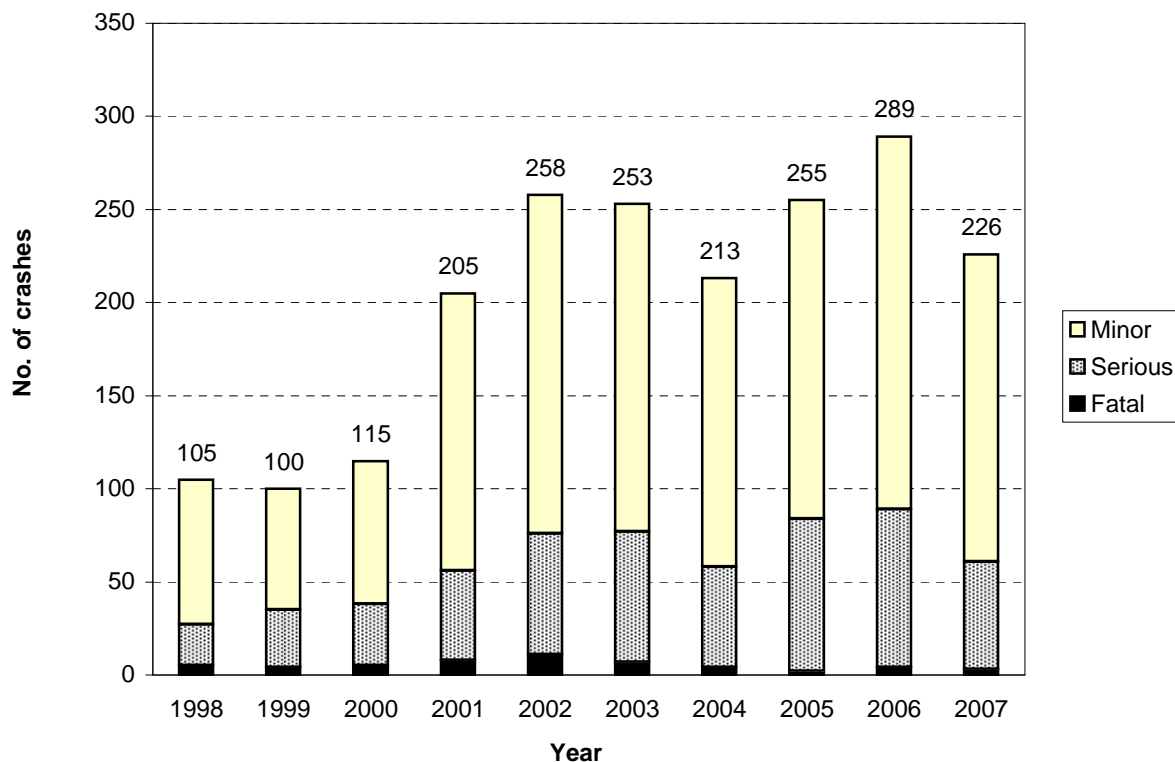
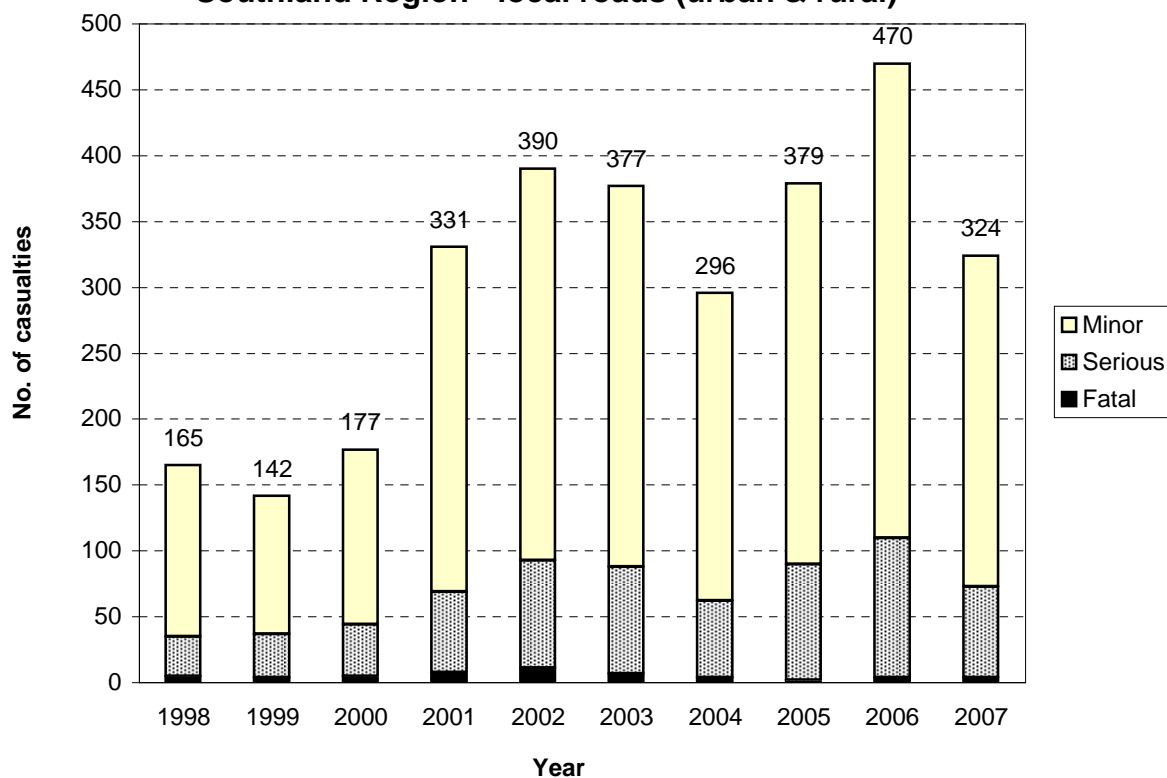
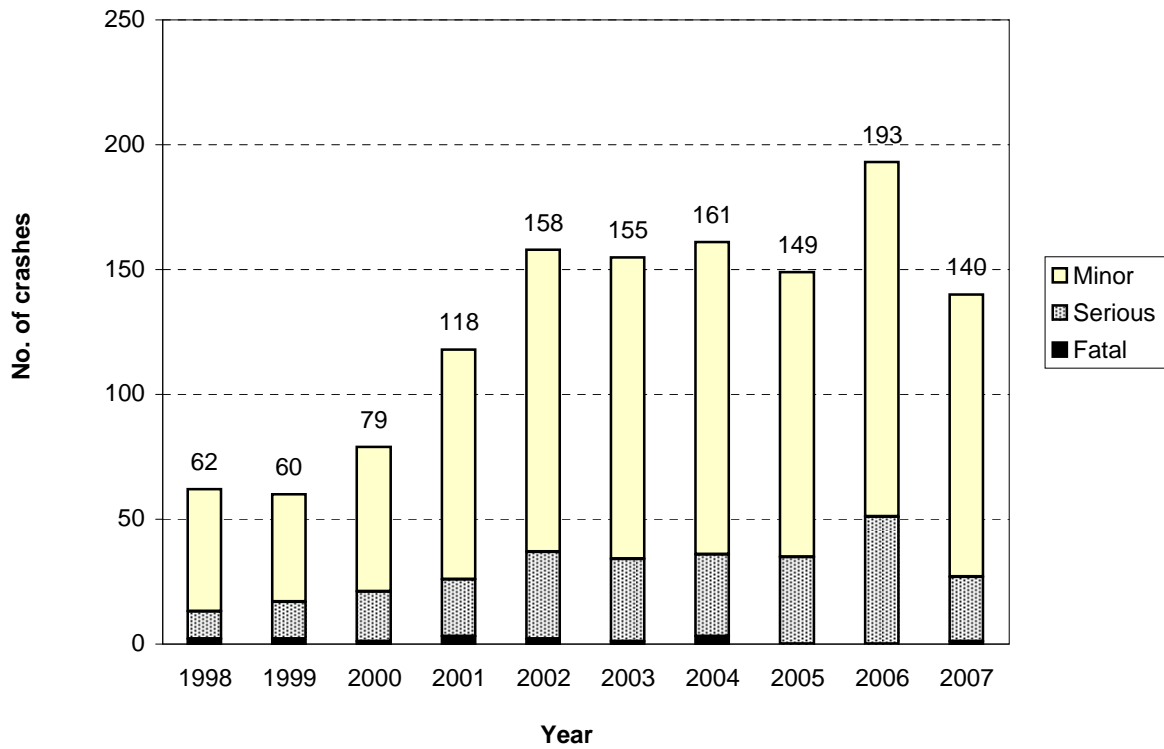


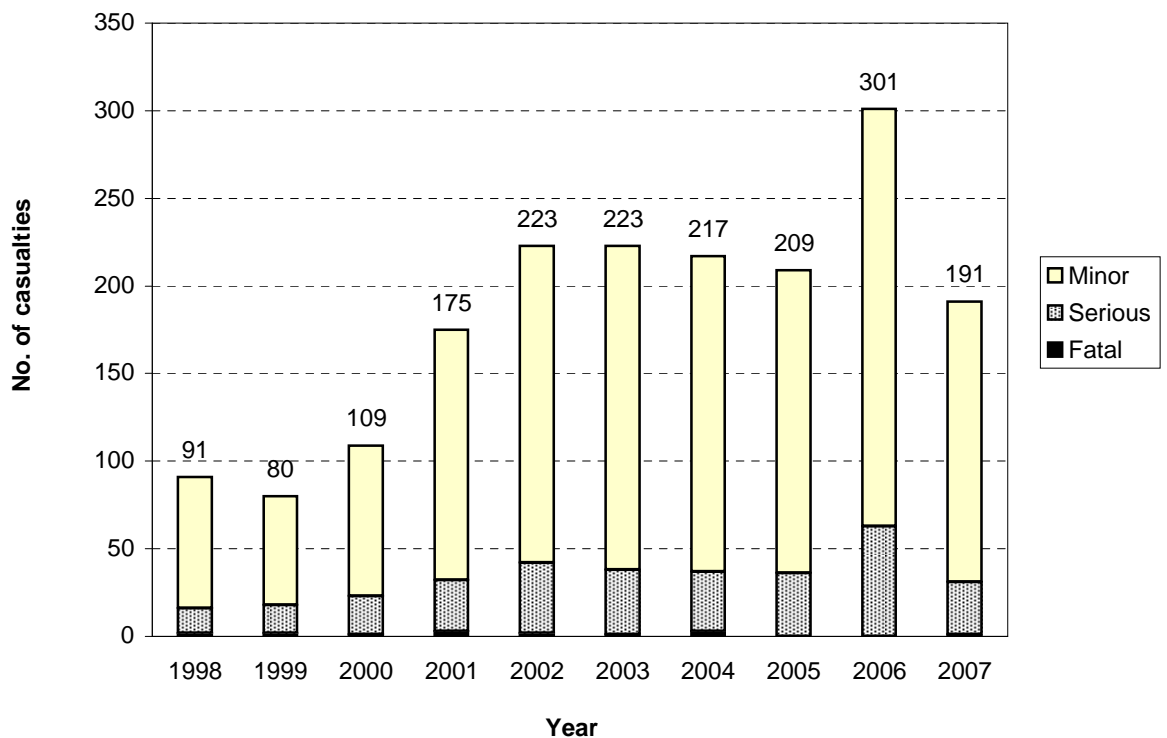
Figure 8.2 Number of casualties
Southland Region - local roads (urban & rural)



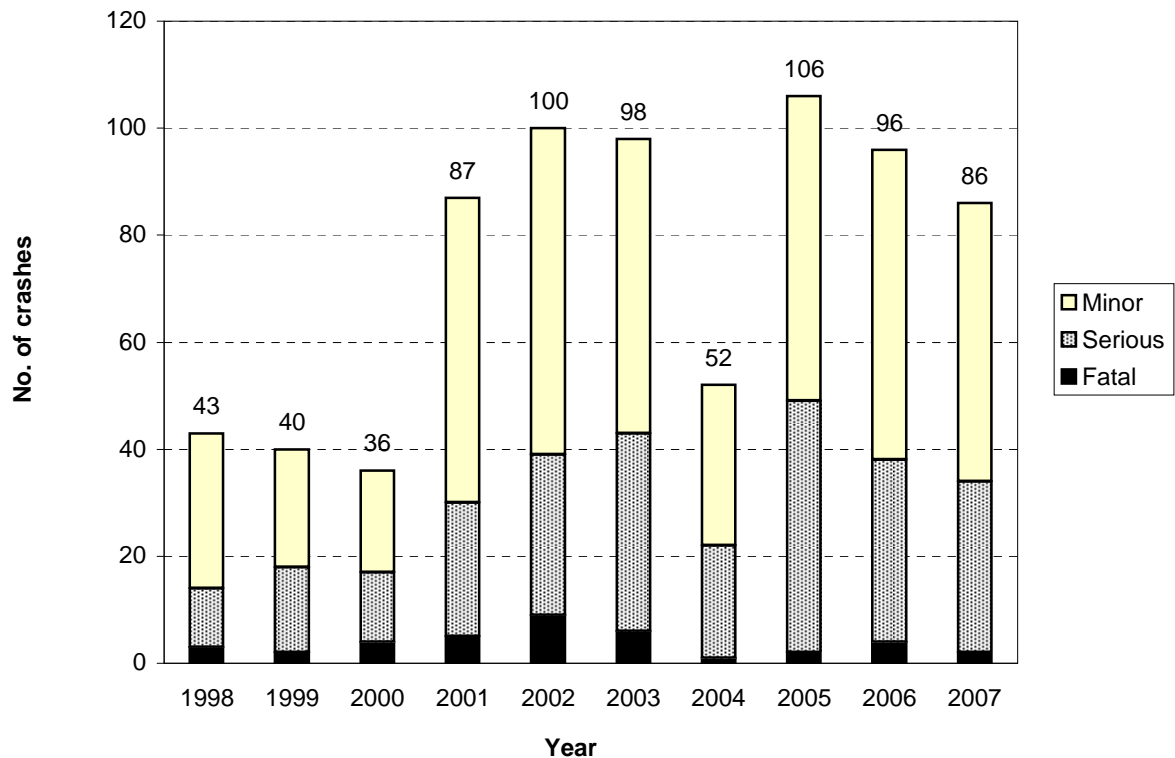
**Figure 8.3 Number of injury crashes
Southland Region - urban local roads**



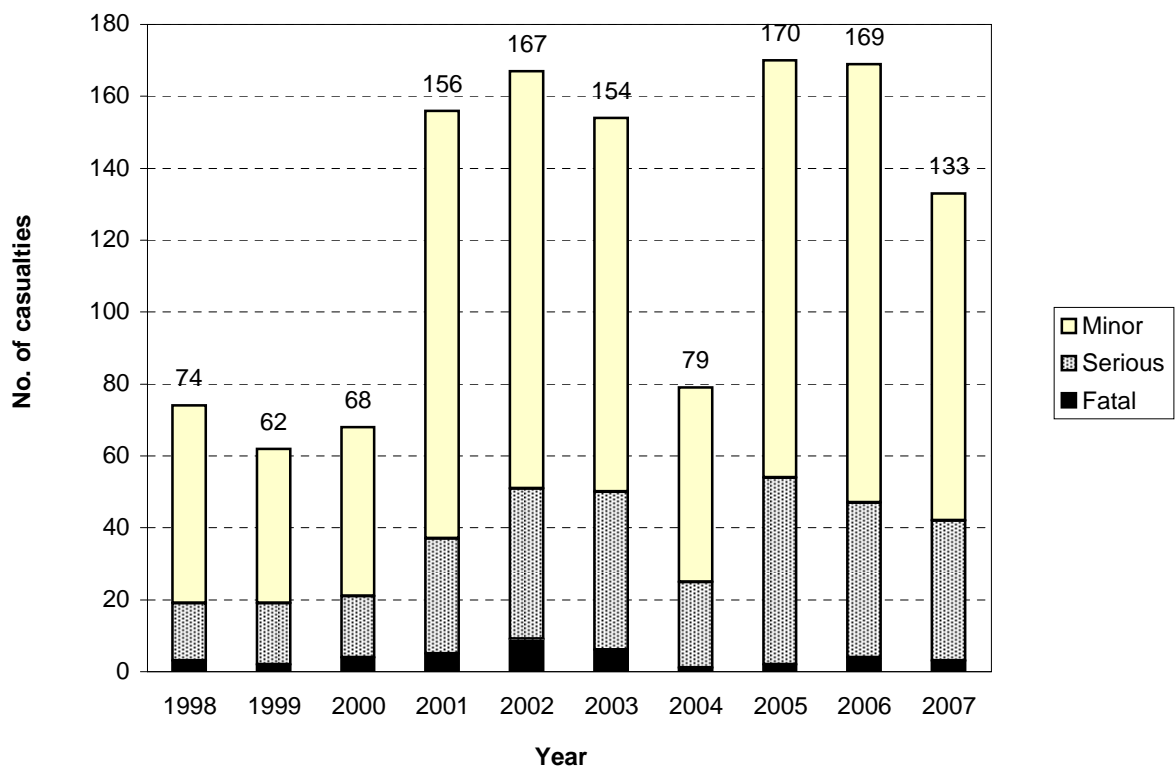
**Figure 8.4 Number of casualties
Southland Region - urban local roads**



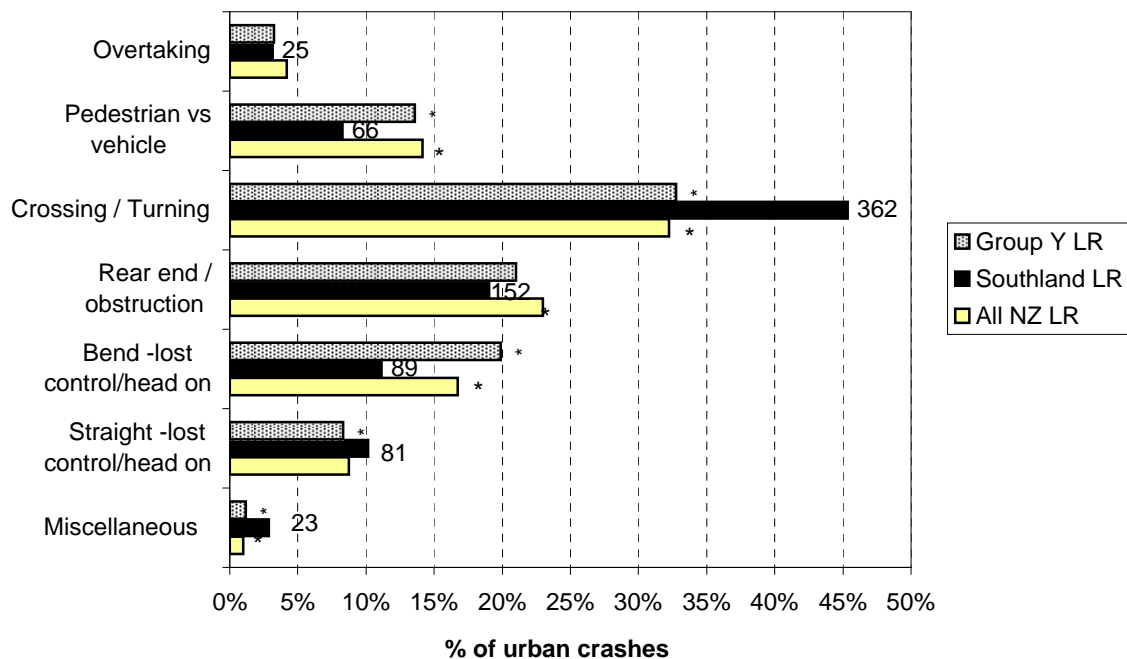
**Figure 8.5 Number of injury crashes
Southland Region - rural local roads**



**Figure 8.6 Number of casualties
Southland Region - rural local roads**

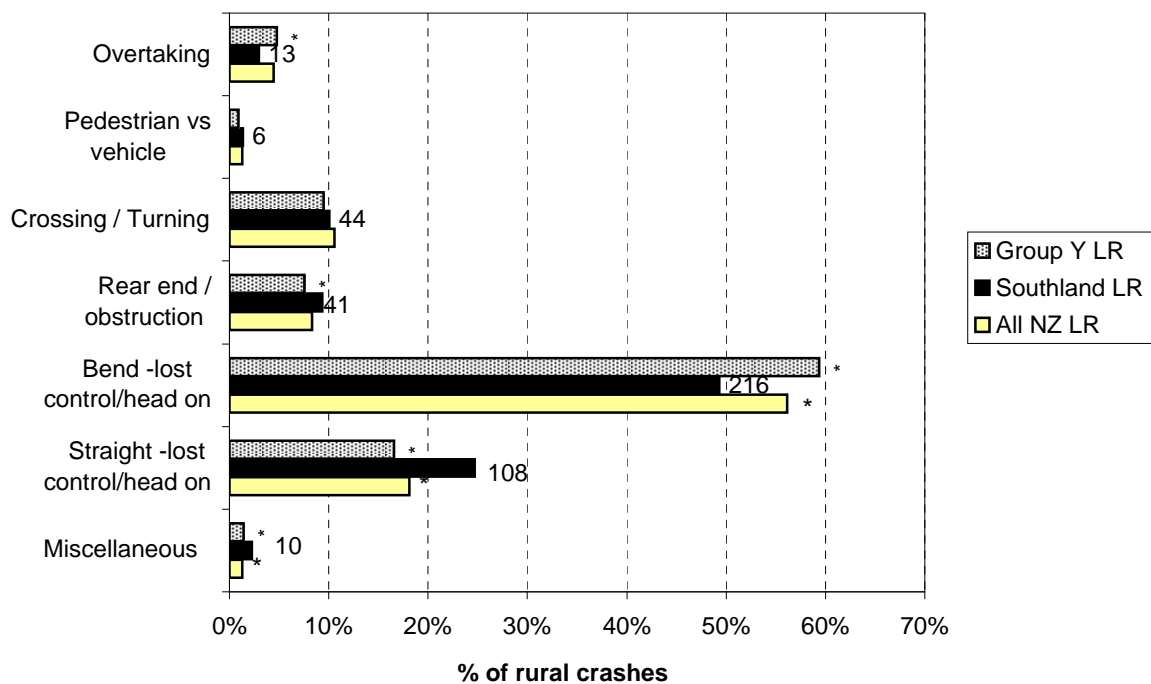


**Figure 8.7 Crash movement type - urban
Southland Region local roads (2003-2007)**



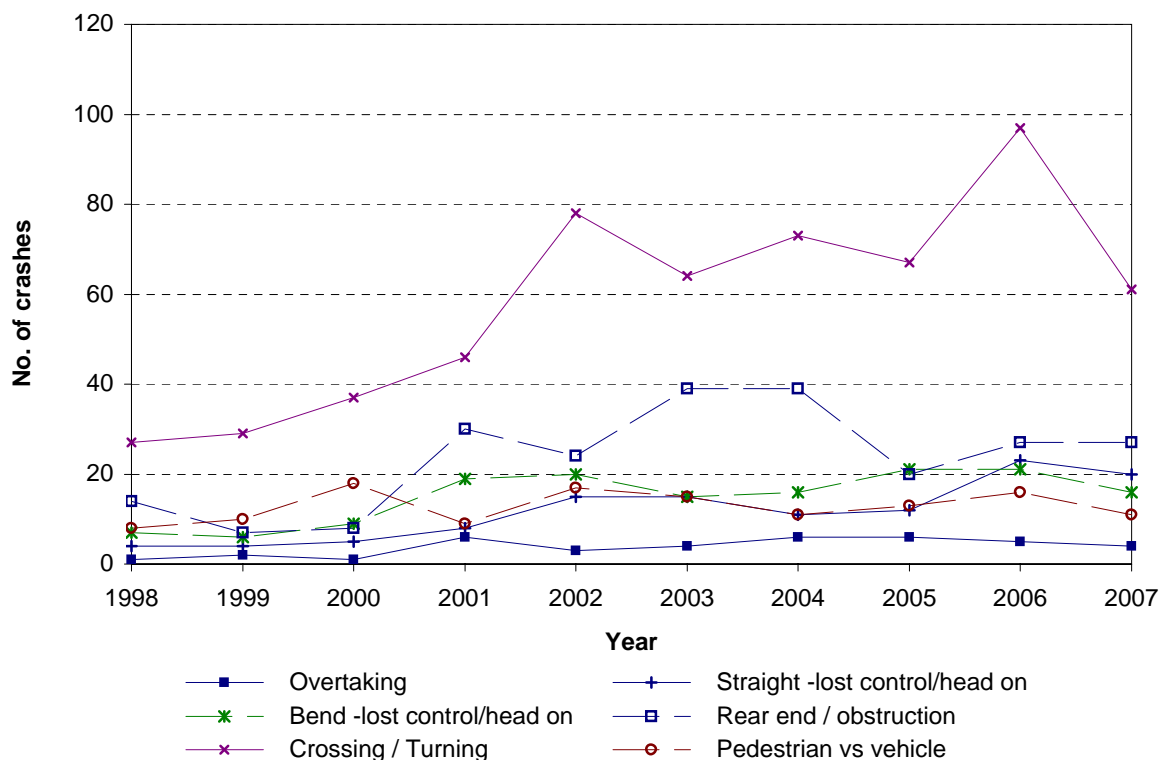
Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.8 Crash movement type - rural
Southland Region local roads (2003-2007)**

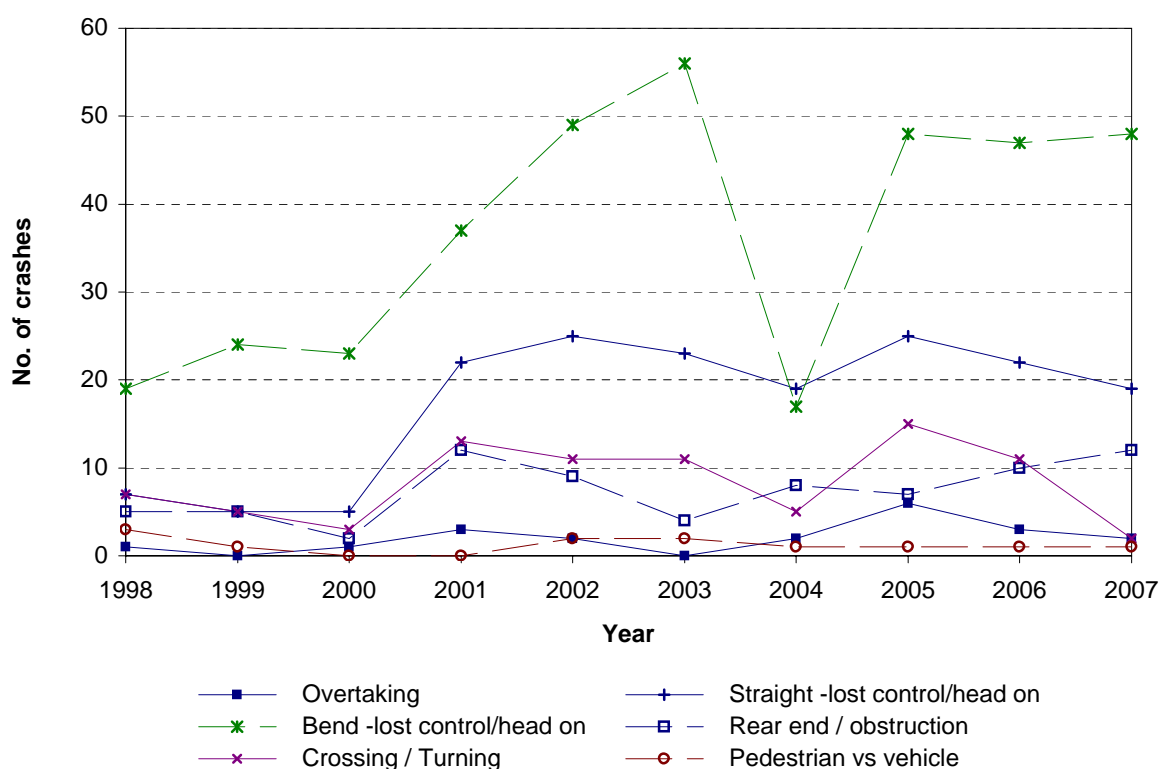


Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

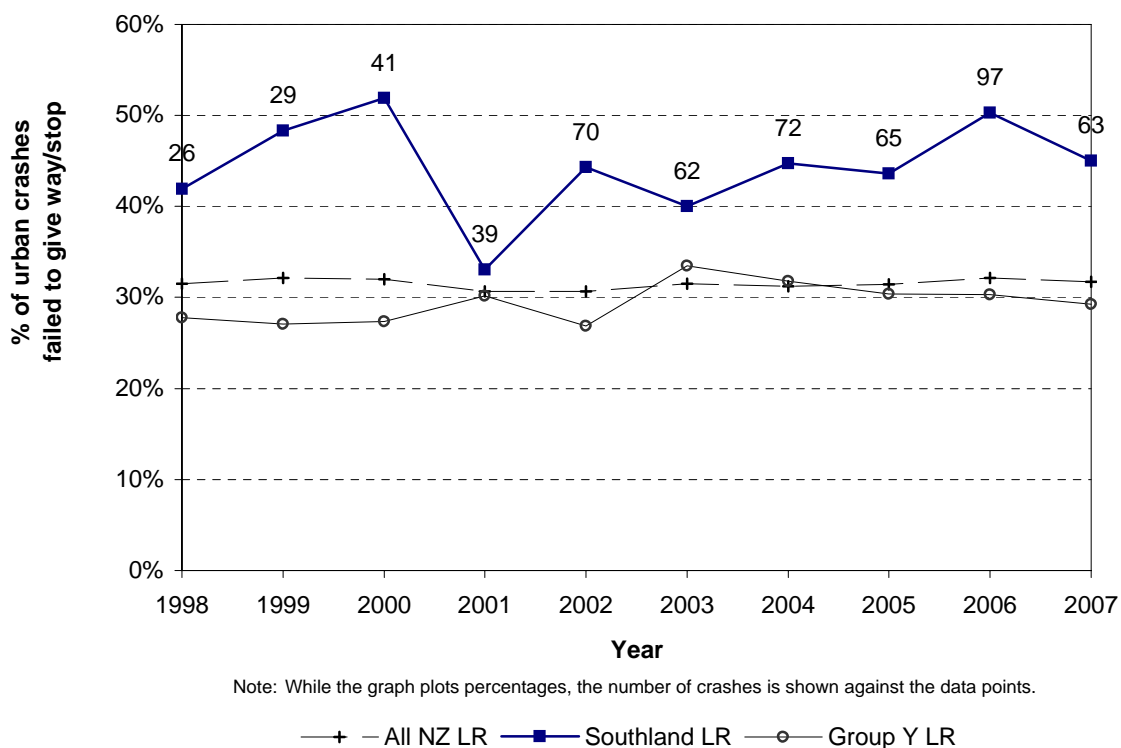
**Figure 8.9 Crash movement type - Trends
Southland Region - urban local roads**



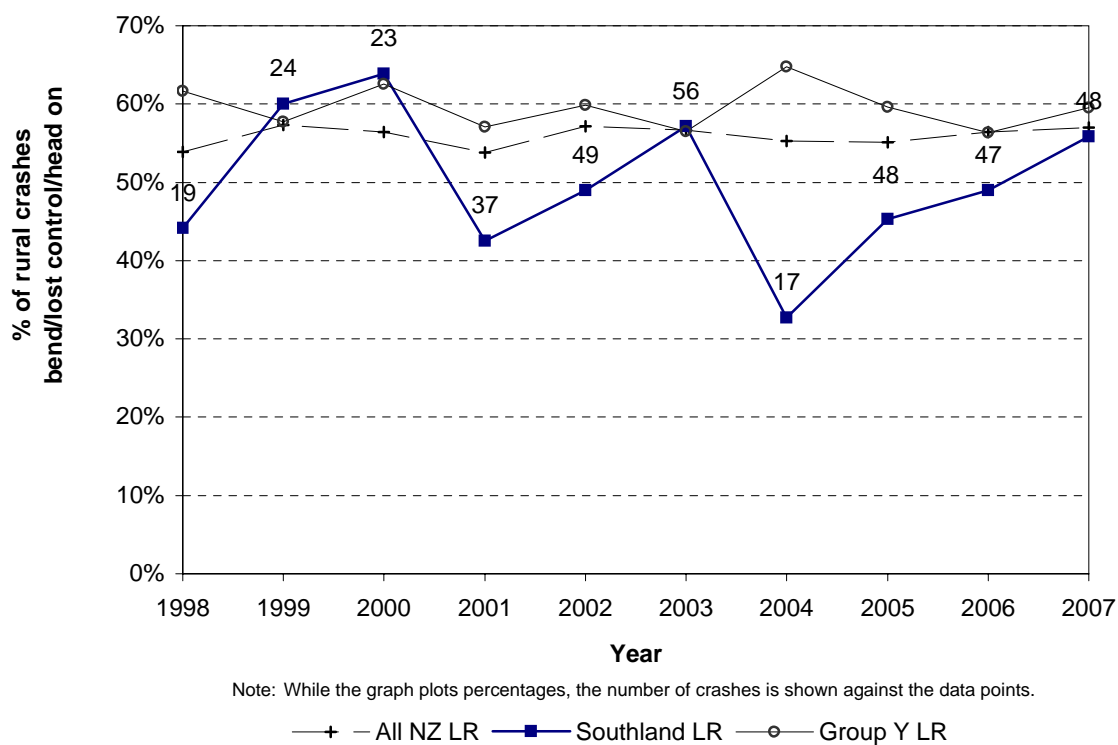
**Figure 8.10 Crash movement type - Trends
Southland Region - rural local roads**



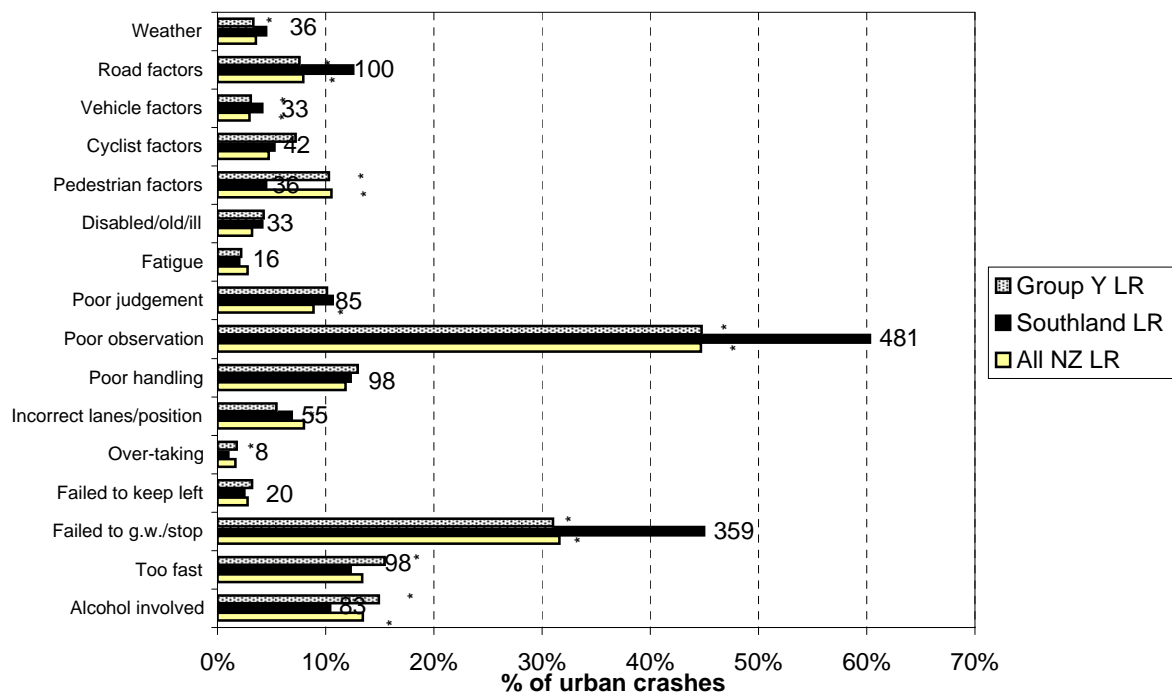
**Figure 8.11 Failed to give way/stop
Southland Region - urban local roads**



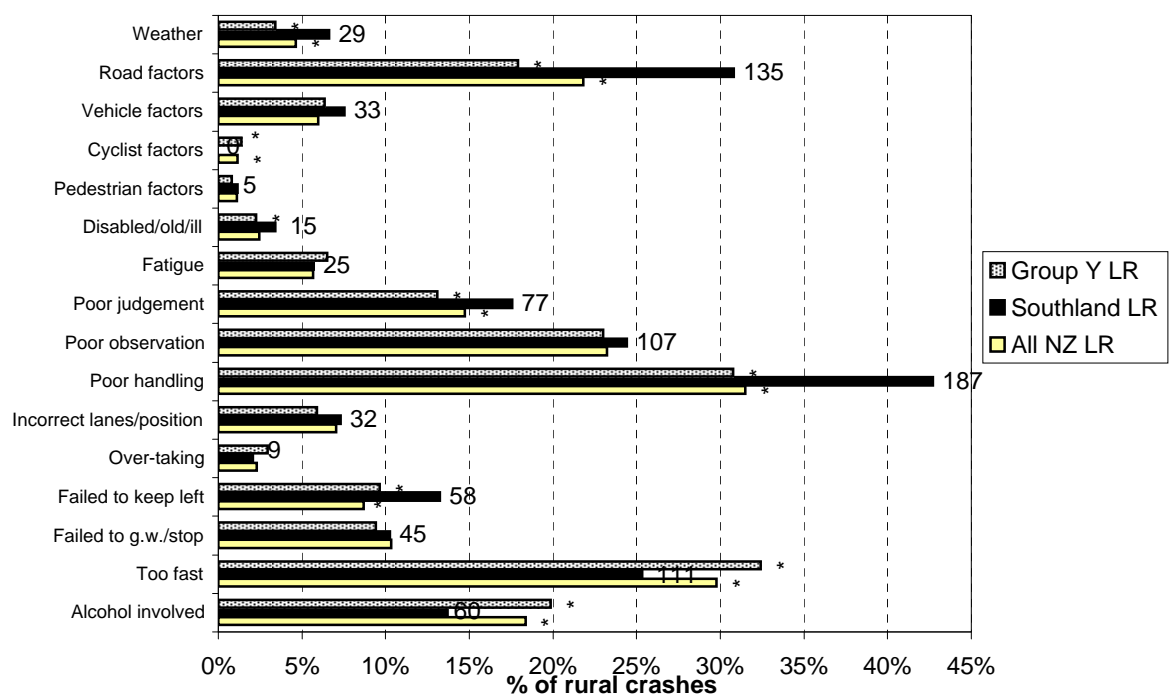
**Figure 8.12 Bend - lost control / head - on
Southland Region - rural local roads**



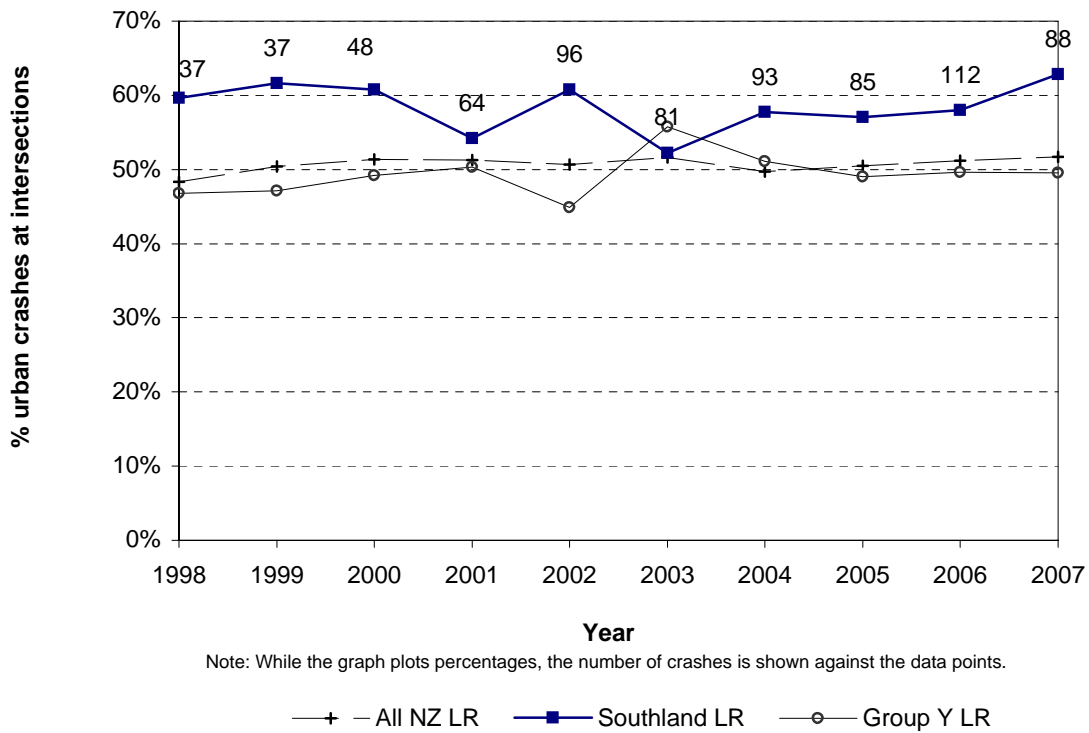
**Figure 8.13 Contributing factors - urban
Southland Region local roads (2003-2007)**



**Figure 8.14 Contributing factors - rural
Southland Region local roads (2003-2007)**



**Figure 8.15 Intersection crashes
Southland Region - urban local roads**



**Figure 8.16 Intersection crashes
Southland Region - rural local roads**

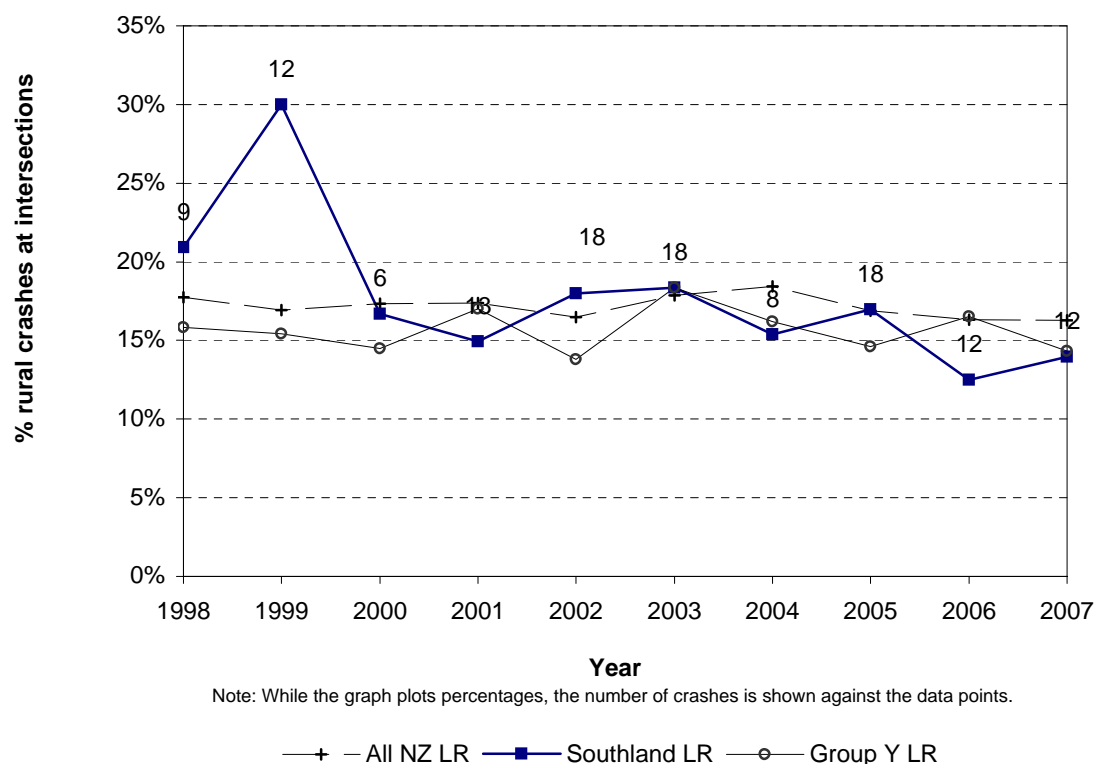


Figure 8.17 Wet road crashes
Southland Region - urban local roads

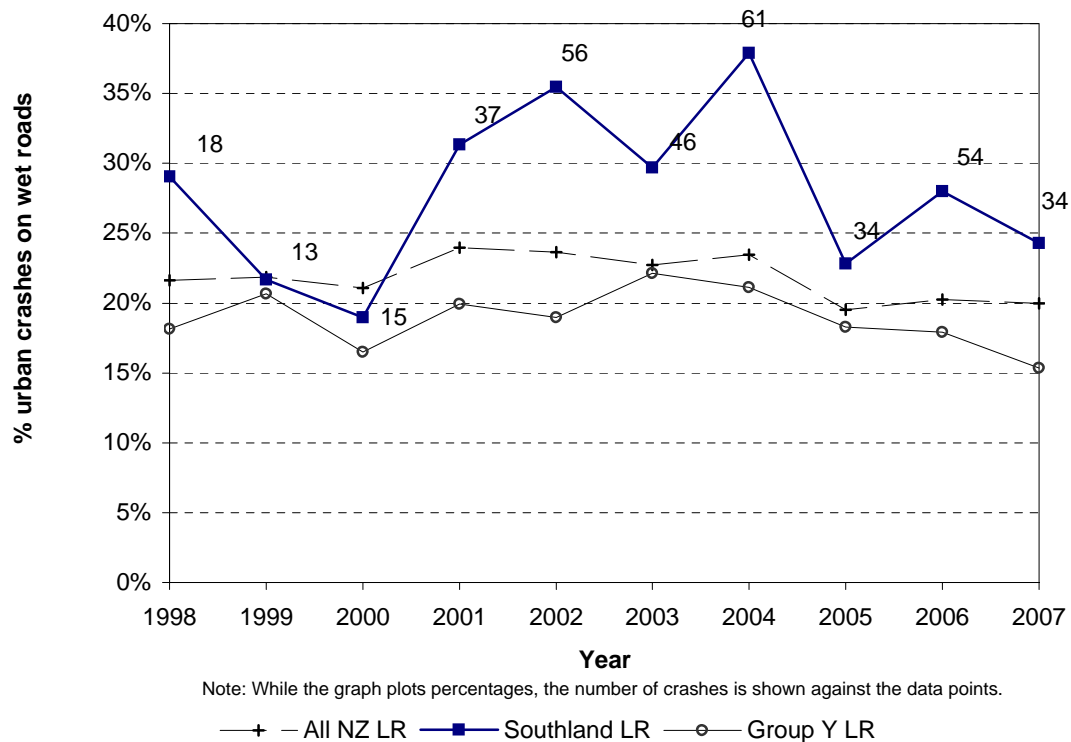
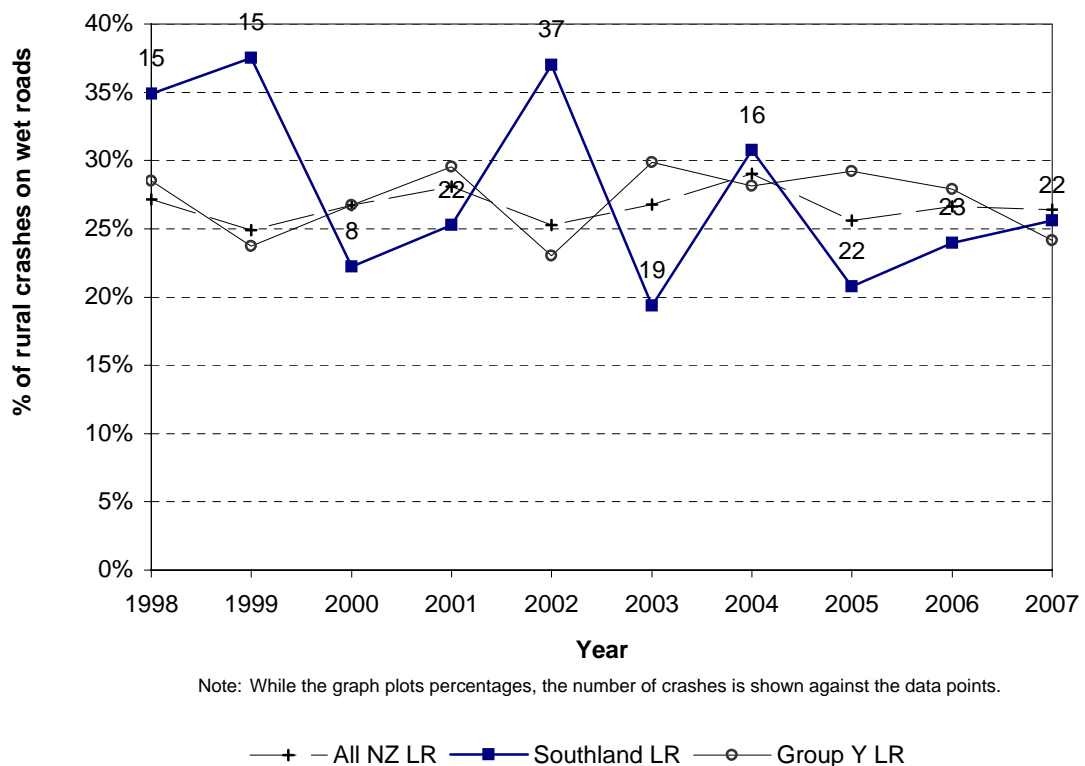
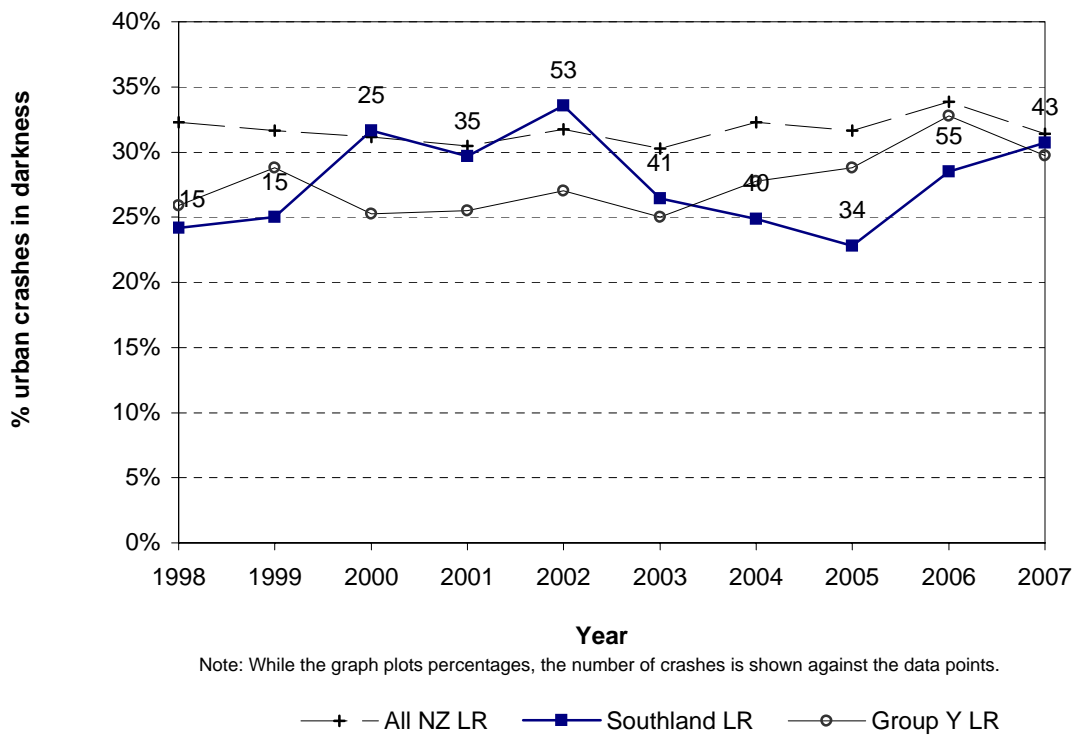


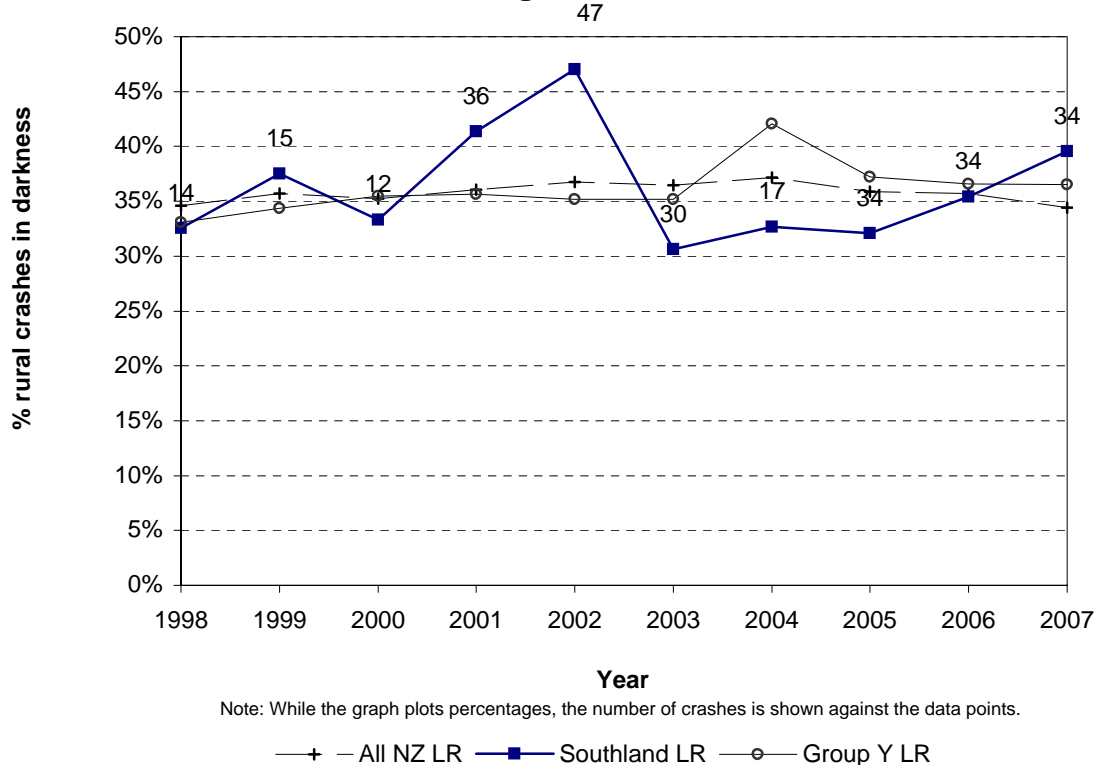
Figure 8.18 Wet road crashes
Southland Region - rural local roads



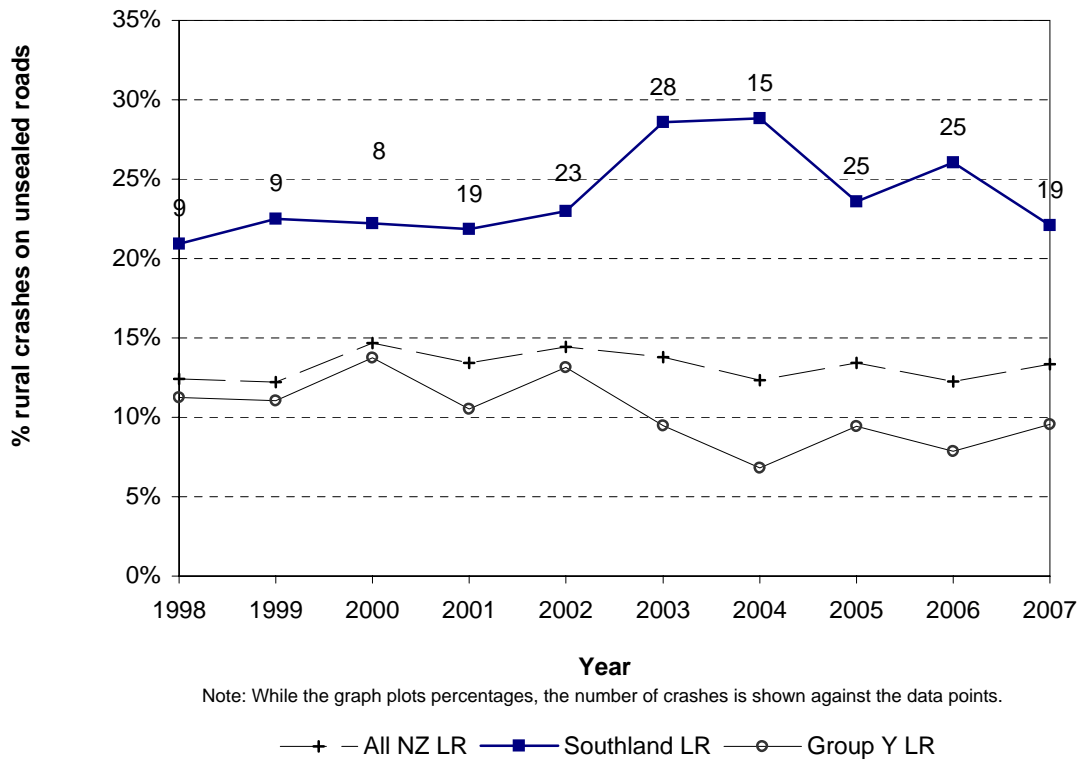
**Figure 8.19 Crashes in darkness
Southland Region - urban local roads**



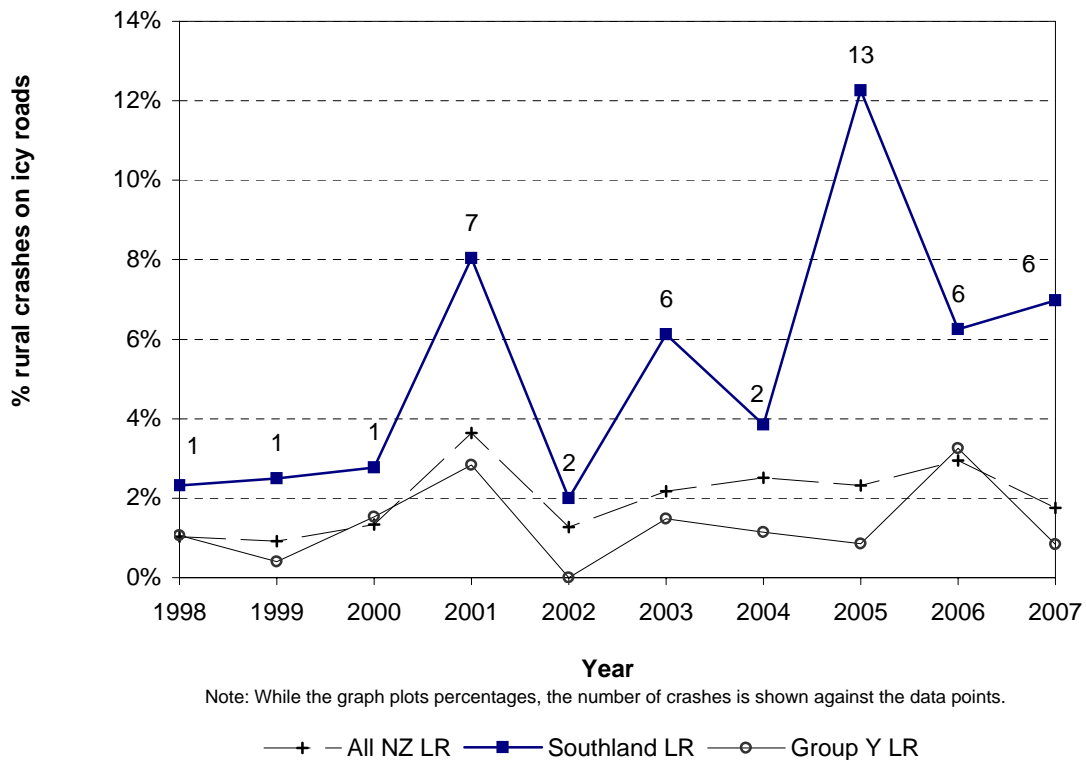
**Figure 8.20 Crashes in darkness
Southland Region - rural local roads**



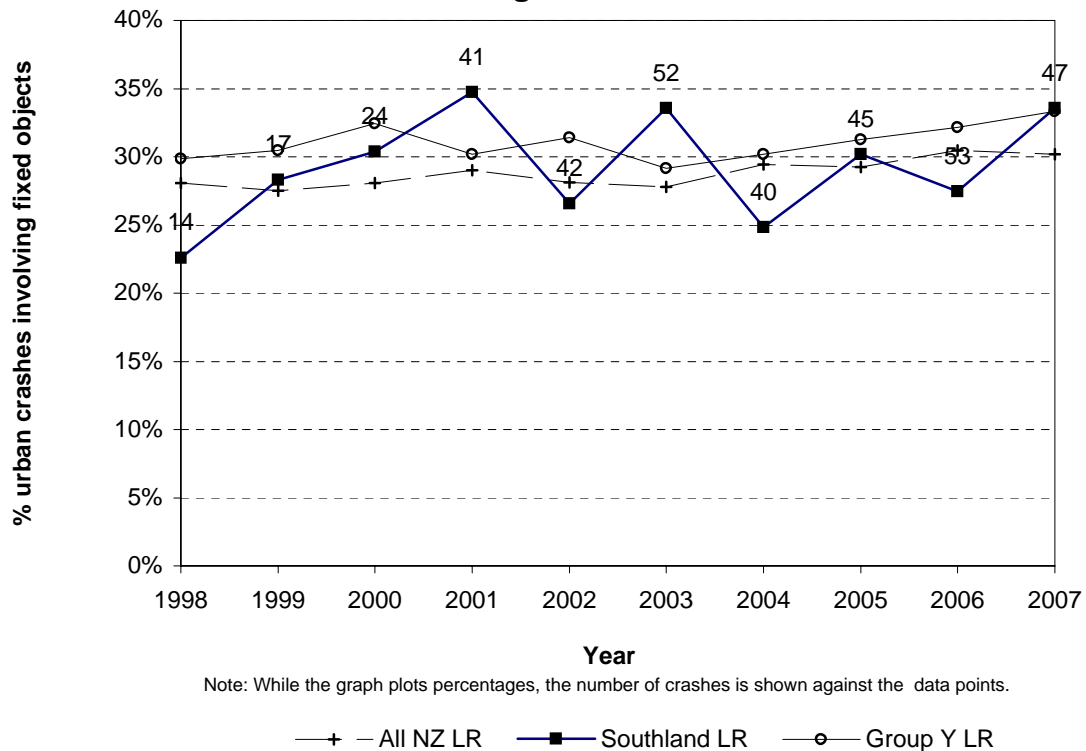
**Figure 8.21 Crashes on unsealed roads
Southland Region - rural local roads**



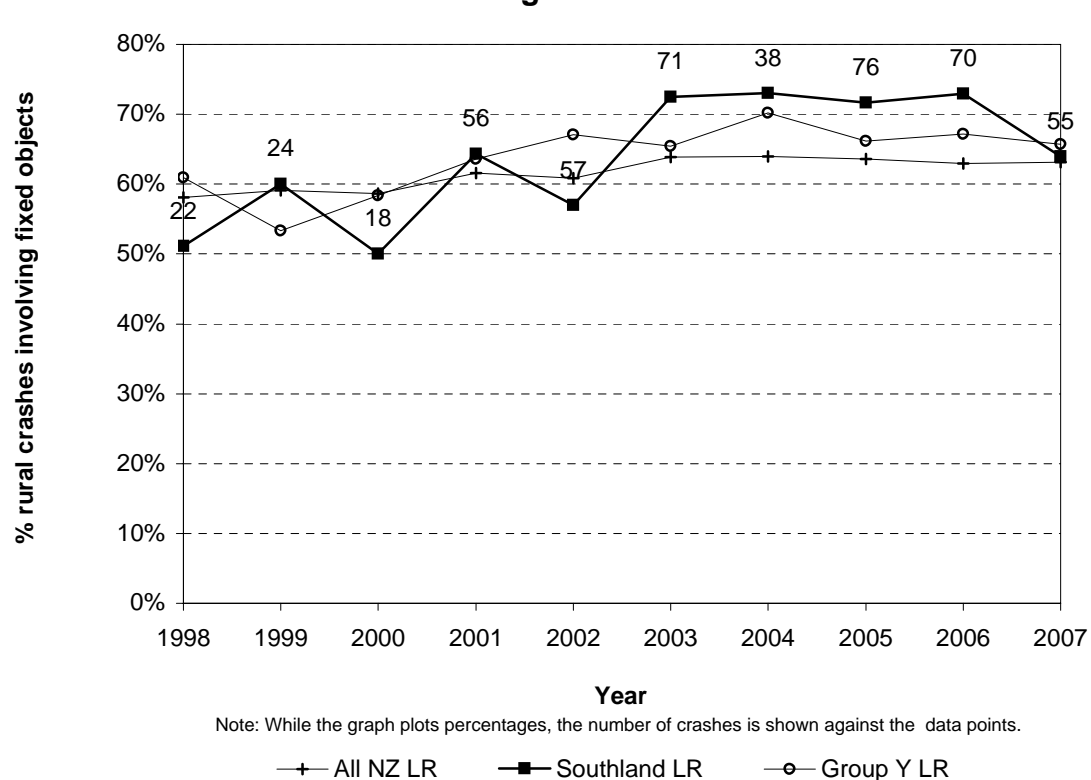
**Figure 8.22 Icy road crashes
Southland Region - rural local roads**



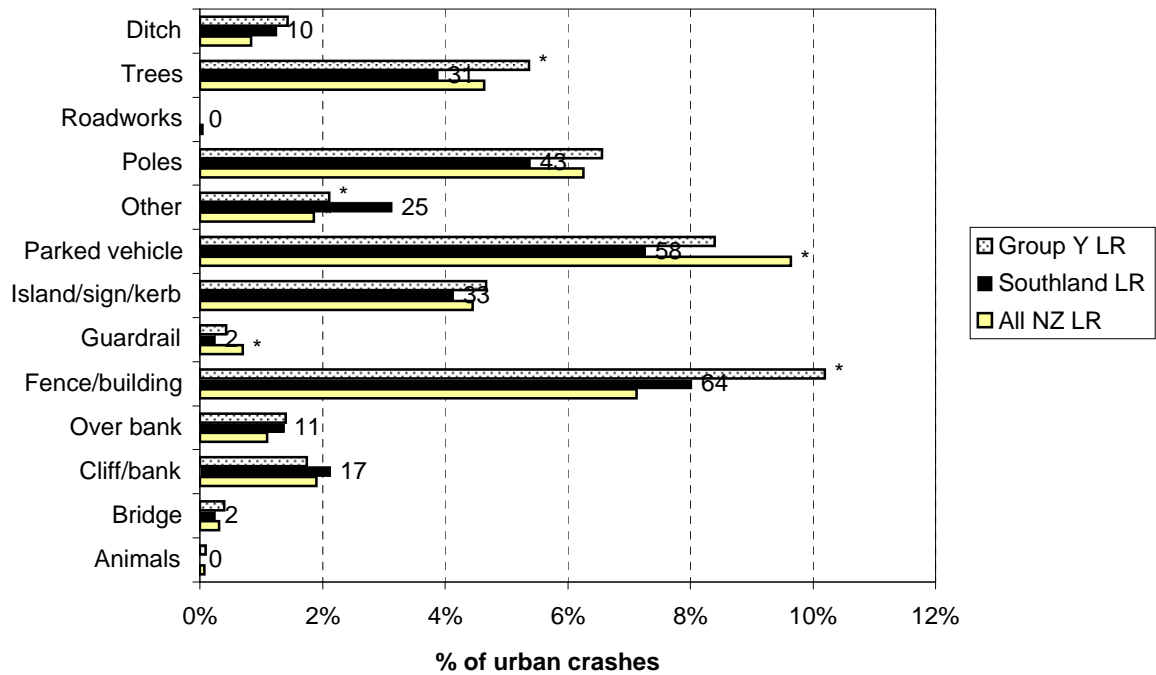
**Figure 8.23 Collisions with objects
Southland Region - urban local roads**



**Figure 8.24 Collisions with objects
Southland Region - rural local roads**

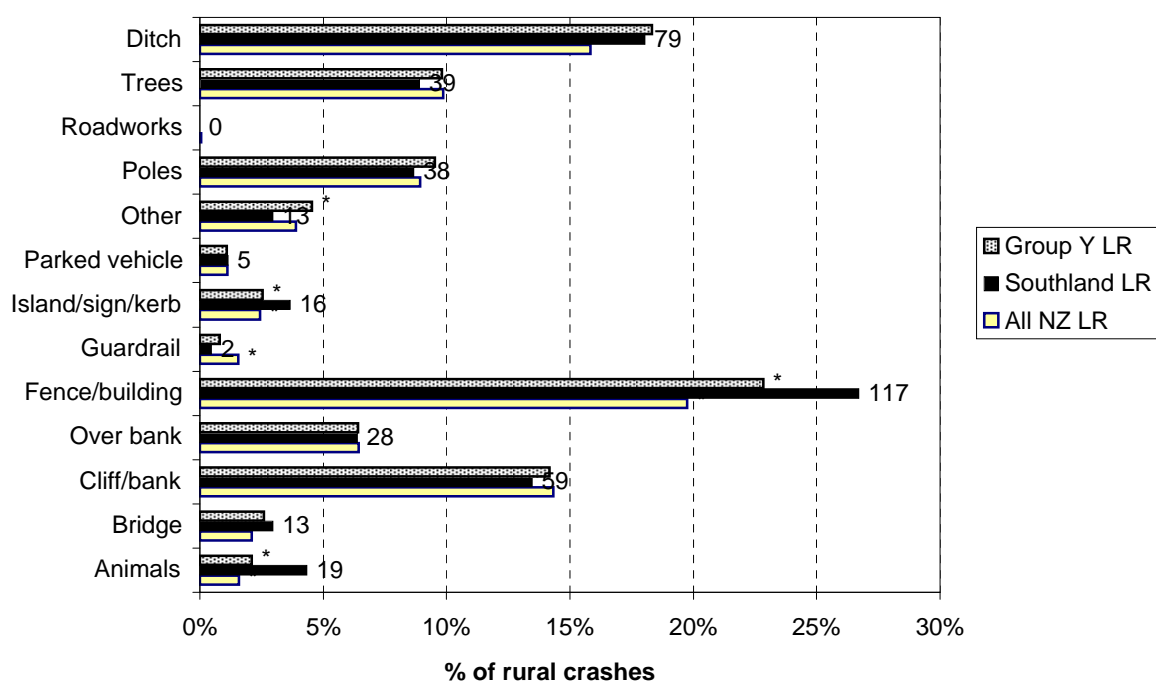


**Figure 8.25 Objects struck - urban
Southland Region local roads (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 8.26 Objects struck - rural
Southland Region local roads (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.
*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

